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AGILE PROJECT MANAGEMENT IN FOOD INDUSTRY

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Abstract. ***The goal of this paper is to be an incipient case study of interdisciplinarity between AGILE SCRUM Methodology and food processing industry. The purposes of interdisciplinarity are profit maximization, productivity increasing and customer satisfaction. This paper starts with a short introduction in theoretical aspects about Agile, including SCRUM framework, emphasizing the applicability of SCRUM Methodology in many fields, including biotechnologies and food processing industry.***

Keywords: food processing industry, AGILE methodology, project management, SCRUM, SCRUM events, backlog, sprint, SCRUM team

1. INTRODUCTION IN AGILE METHODOLOGY

The goal of this article is to present a case study of interdisciplinary fields such as food processing industry and AGILE project management, a specific methodology of software development industry.

The Agile SCRUM team is composed of the following members, all of them being specialists with the best skills [1-8]:

- product owner – the person which comes with the idea of the product
- scrum master - the responsible for the good work of the project
- development team – specialists with the best skills in delivering fully functional projects in agreement with the specifications defined by Product Owner

Applying AGILE SCRUM methodology in food processing industry, the workplan will have its best structure, it will be emphasized the clarity of all assignments and transparency will define the assignments progress. In this way, each employee or team member is responsible with his own work, and he has transparency in task workflow [1-4].

The following figure represents the Agile Team (Figure 1) [1-4]:

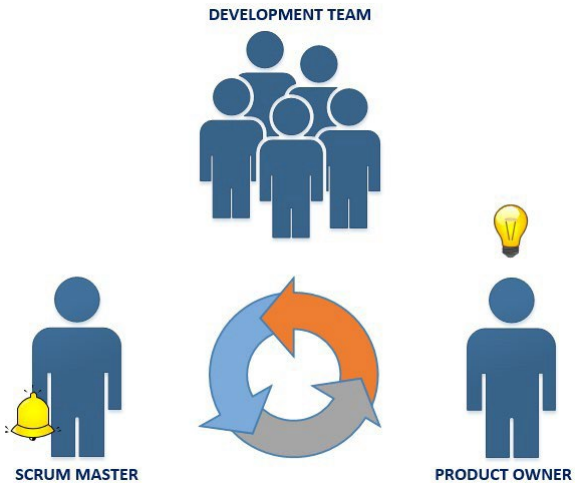


Figure 1. The AGILE deliverable development team [1-4]

All AGILE SCRUM artefacts are widely described in literature. The main goals of AGILE Methodology are adaptation, transparency and communication on one side, and, on the other side, delivering value to customers in a fast time [1-4].

2. AMARANTH COOKIES PRODUCTION PROCESS

In the following chapter is presented the amaranth cookies production process.

The raw and auxiliary materials used contain multiple beneficial effects, improving the taste and nutritional qualities of the finished product [9-15].

The general list of ingredients and raw materials used in amaranth cookies production process is the following [9-11]:

- oat
- popped amaranth.
- amaranth flour
- coconut butter

- almond butter
- chia seeds
- goji
- honey
- dried raspberries
- dried blueberries
- dried blackberries

The description of amaranth cookies is presented in the following table (Table 1) [9-11]:

Table 1. Product description

Product type	Food supplement in cookie form
Main characteristics	Compact
packaging	Packing in flow pack
Storage time	Maximum 10 days
Where to sell?	Supermarkets, pharmacies, health food stores
Labelling instructions	The label must state that the product is a food supplement

In the following, the general Production Process of amaranth cookies is widely described [9-15]:

- First step is represented by qualitative and quantitative reception of ingredients.
- After that, the mixing process begins. All the enumerated ingredients are mixed together in order to obtain a mix.
- The next step is to portion the dough forming the cookies
- The following step is to bake the cookies, using professional oven, for 14 minutes at the temperature of 160℃.
- The next step is the cooling process. Using a professional cooler, the cooling process lasts 3 hours.
- The next step represents the packaging of the product using the packages mentioned also in product specifications.
- The final step represents the delivery of the product to partner stores.

In the following, considering the specialty literature [9-11], the production process is presented in the following diagrams (Figure 2):

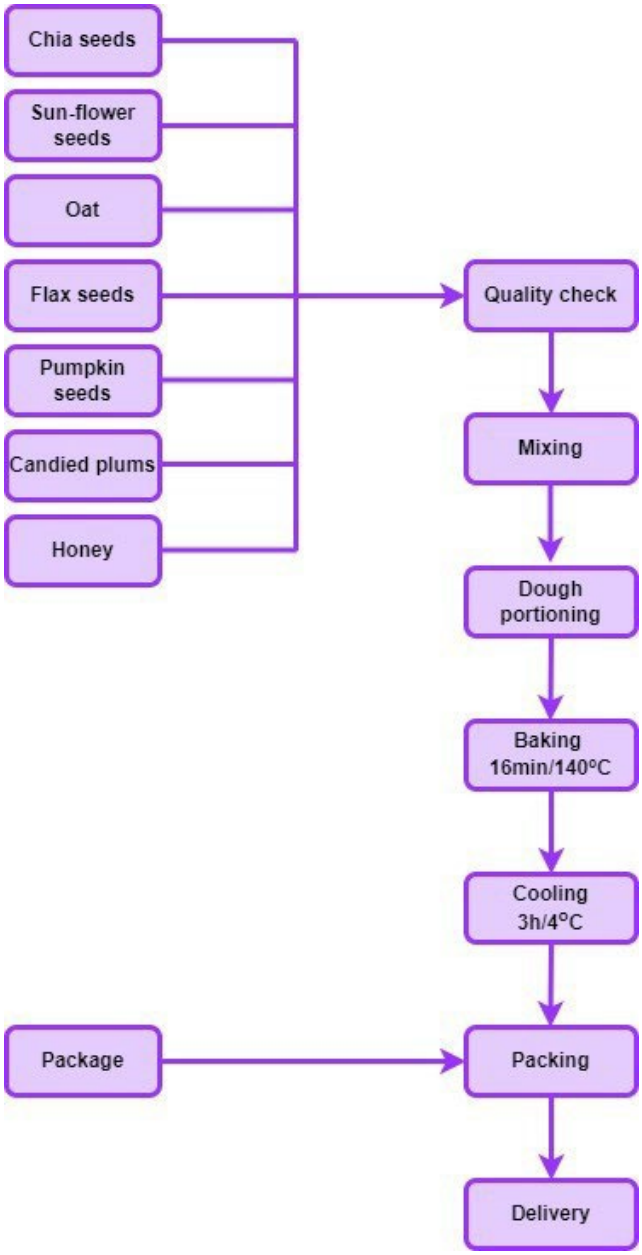


Figure 2. The production process for amaranth cookies [9-11]

3. AGILE SCRUM APPLIED IN FOOD PROCESSING INDUSTRY

Progress and evolution are necessary in all fields of industry. In order to emphasize the necessity of these two important elements, the interdisciplinary collaboration is often used.

Applying AGILE SCRUM methodology in food processing industry, the workplan will have its best structure, it will be emphasized the clarity of all assignments and transparency will define the assignments progress. In this way, each employee or team member is

responsible with his own work, and he has transparency in task workflow [].
The AGILE SCRUM methodology will be applied to the amaranth cookies production process, which includes all the production, each step having its own acceptance criteria [1-4,16].

In order to emphasize the benefits of AGILE methodology, it is considered a simplistic example, a small food factory that produces different cookies and bars, in our case, amaranth cookies.

For this product the production process is widely described in previous chapter.

The entire workload is tracked, in this way there is transparency and clarity. Trello task management tool is used in order to organize the work in Sprints, each Sprint is one week long [8].

The team members are the following:
- one team member responsible for quantitative and qualitative reception, represented in task management tool with the initials IM;
- one team member responsible for baking and cooling products, represented in task management tool with the initials GS;
- a team member responsible for mixing, slicing and packing products, represented in task management tool with the initials DS;
- a team member responsible for delivery and distribution, represented in task management tool with the initials GN;
- food engineer, represented in task management tool with the initial D;

From AGILE SCRUM perspective, this project is divided such as the following figure (Figure 4):

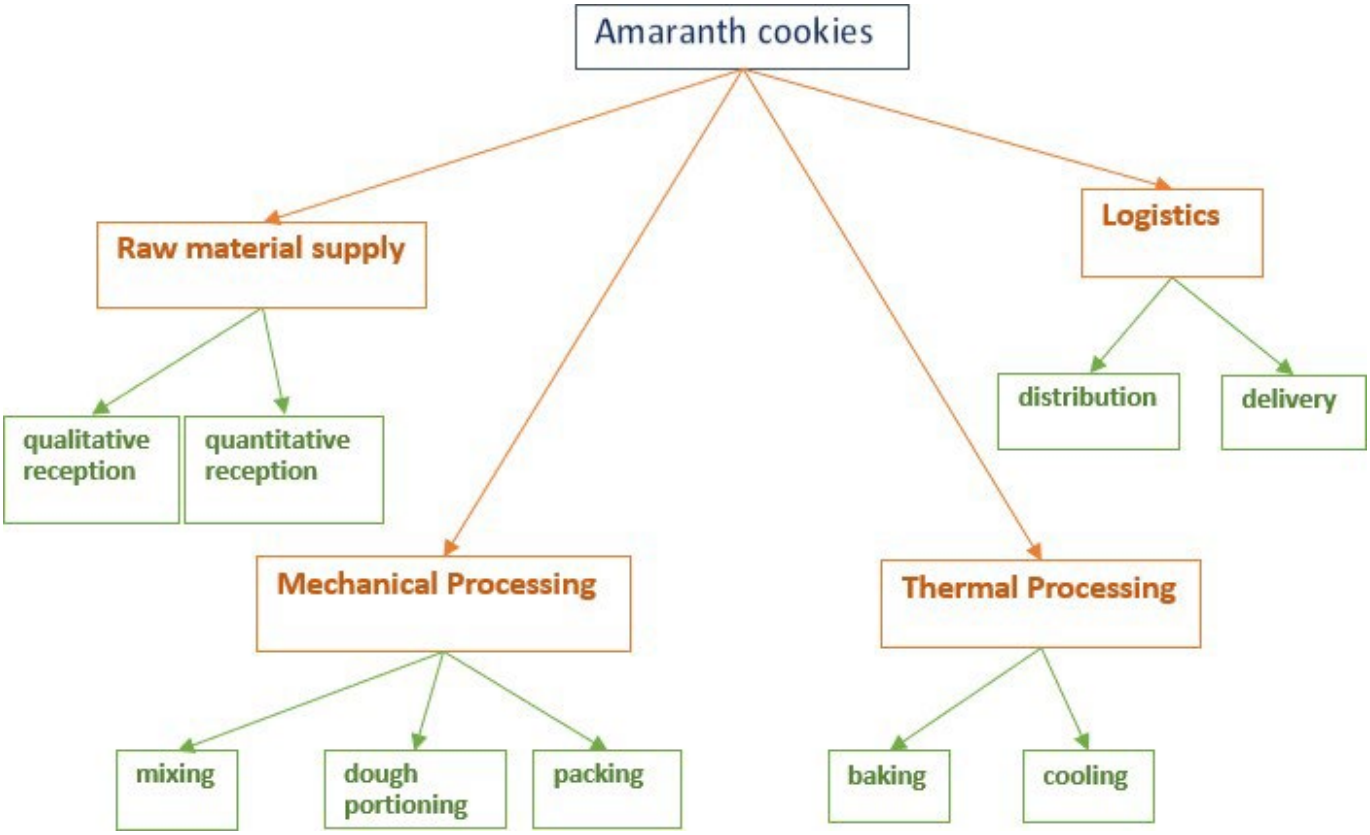


Figure 4. Sesame-based bars production process divided in tasks

The tasks of this project are the following [1-4]:
- raw material reception – quality and quantitative reception
- mechanical processing tasks – mixing, slicing, packing.
- thermal processing tasks – backing and cooling.
- logistic tasks – delivery and distribution

Using Trello software tool, Scrum master with the entire team participate at Sprint Planning meeting at the beginning of each Sprint.

During this meeting, the tickets from Backlog are transferred to Sprint Backlog. All AGILE SCRUM ceremonies are widely described in literature [1-4].

In the following figures are presented the Sprint Backlog of amaranth cookies production process (Figure 6) [16]:

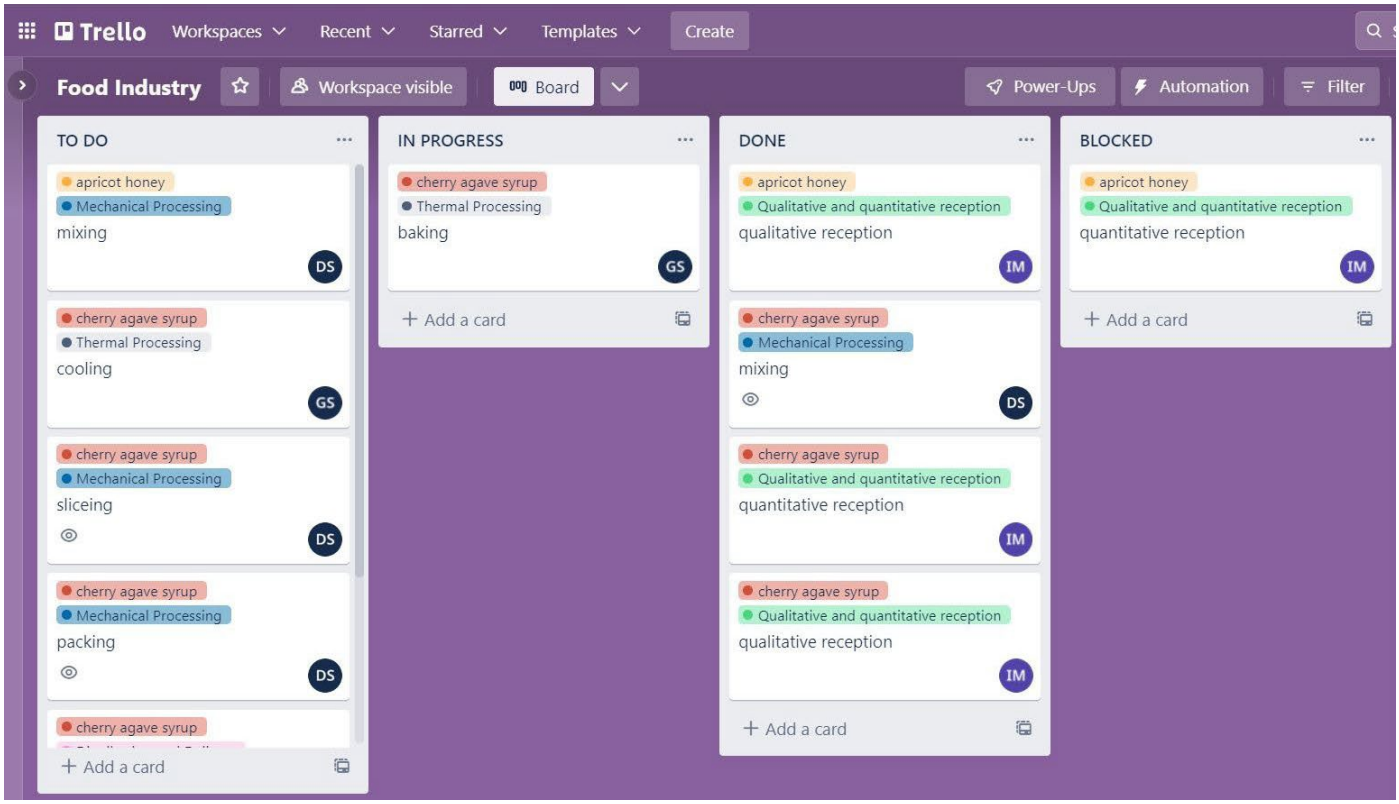


Figure 6. Sprint Backlog of Sesame-based bars production process [8]

Project management is necessary in many fields of industry including Food Processing Industry, not only in software development. AGILE SCRUM Methodology often used in software engineering, presents a lot of benefits, such as good productivity and good profit.

4. CONCLUSIONS

The goal of this paper is to represent an incipient case study of interdisciplinarity between AGILE SCRUM Methodology and food processing industry. The purposes of interdisciplinarity are profit maximization, productivity increasing and customer satisfaction. This paper starts with a short introduction in theoretical aspects about Agile, including SCRUM framework, emphasizing the applicability of SCRUM Methodology in many fields, including biotechnologies and food processing industry.

Due to the fact that this paper presents a preliminary case study, the presented process, including the tasks, are presented in a simplistic version.

Nowadays, most of people are interested in buying these products and even recommending them to other consumers. An important aspect is that these products are benefit to the human body due to raw materials that are used to obtain these cookies.

All the presented diagrams from this paper were designed using Microsoft Visio with the purpose of presenting suggestive representations.

5. REFERENCES

[1] L. Adkins, Coaching Agile Teams: A Companion for ScrumMasters, Agile Coaches, and Project Managers in Transition (Addison-Wesley Signature Series (Cohn), Addison-Wesley Professional, 2010, ISBN-10: 0321637704, ISBN-13: 978-0321637703

[2] Geoff Watts (Editor), Scrum Mastery: From Good To Great Servant-Leadership, Inspect & Adapt Ltd, 2013, ISBN13: 9780957587403

[3] https://agilemanifesto.org/

[4] Mesaros, Diana, Rusu, T. and Mesaros, I.. "Agile Scrum Applied in Agricultural Processes" The Scientific Bulletin of Electrical Engineering Faculty, vol.22, no.1, 2022, pp.1-5. https://doi.org/10.2478/sbeef-2022-0010

[5] Lynda Girvan, Debra Paul, Agile and Business Analysis: Practical guidance for IT professionals, BCS, The Chartered Institute for IT, 2017, ISBN-10: 1780173229

[6] Jim Highsmith, Agile Project Management: Creating Innovative Products, Pearson Education/Addison-Wesley, United States, 2004, ISBN: 0-321-21977-5

[7] Don McGreal, Ralph Jocham, The Professional Product Owner: Leveraging Scrum as a Competitive Advantage, Addison-Wesley Professional, 2018, ISBN-10: 0134686470, ISBN-13: 978-0134686479

[8] Mohammed Musthafa Soukath Ali, The Professional Scrum Product Owner: Guide to Pass PSPO 1 Certification, Independently published 2017, ISBN-10:1521476047, ISBN-13: 978-1521476048

[9] Constantin Banu, Violeta Nour, Camelia Vizireanu, G. Musteaţă, Silvia Rubţov, D. Răsmeriţă, 2007, Calitatea şi analiza senzorială a produselor alimentare, Editura AGIR, Bucureşti, pag 304-312.

[10] Raducu Camelia, Aurelia Coroian, 2016, Biotehnologii de pelucrare și control a calităţii produselor vegetale şi animale. Manual universitar. Editura AcademicPres, Cluj.

[11] Aurelia Coroian, 2014, Toxicologia alimentelor, Editura Bioflux, Cluj-Napoca.

[12] Luisa Andronie, Liviu Holonec, Ioana Pop, Alina M. Truță, Antonia Odagiu, Tudor Sălăgean, Rodica Sobolu, Aurelia Coroian, Igori Balta, Elemer E. Șuba, 2019. Antioxidant Capacity of Several Romanian Forest Fruits (Rosa canina L., Prunus spinosa L., Vaccium vitis-idaea L. and Cornus mas L.). *Not Bot Horti Agrobo*, 47(4).

[13] Vasile Stănescu, Sorin Apostu, 2010, Igiena, inspecţia şi siguranţa alimentelor de origine animală volumul II, Editura Risoprint, Cluj-Napoca.

[14] Guș C. (2003) Conservarea alimentelor, Ed. Risoprint, Cluj-Napoca.

[15] Bulancea M., Râpeanu G. (2009) Autentificarea și identificarea falsificărilor produselor alimentare, Ed. Didactică și pedagogică, București.

[16] https://trello.com/