CASE STUDY

Topic: **SMART PASTA FOR HEALTHY LIFE**

Team № **15**

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I. Executive Summary (150 words)

SmartPasta for Healthy Life is an innovative line of functional and personalized pasta products tailored to modern health-conscious consumers. Combining **three unique concepts— beetroot pasta** for natural flavor and color enhancement, **fruit-purée-colored pasta** for children, and **functional SmartPasta** enriched with protein, fiber, and low-carb ingredients—the product line addresses diverse dietary needs. The beetroot variant offers a flavorful alternative requiring fewer sauces, while the children's pasta, made with rice and white flour, uses natural berry pigments to create visually engaging and nutritious meals for young eaters. **The SmartPasta** base incorporates eco-packaging and QR codes for personalized nutrition tracking and guidance. Designed for families, athletes, and individuals with dietary sensitivities, this concept responds to rising demand for nutritious, appealing, and sustainable food products. This case study outlines the development and marketing strategy of **SmartPasta**, demonstrating its potential to disrupt the pasta market with customization, clean-label ingredients, and environmental responsibility (**Appendix 1 - LOGO**).

II. Introduction (300 words)

The idea behind **SmartPasta for Healthy Life** originated from a personal experience: a love for pasta met with a lack of variety in visually and nutritionally diverse products on the market. While traditional pasta offerings include a range of flours and occasional additions like spinach or eggs, they often remain conventional and uninspiring—especially for children. Color, as a primary sensory trigger, plays a vital role in food appeal. Many children avoid healthy foods due to dull or unappetizing appearances, whereas vibrant colors—such as red—evoke positive emotions and increase interest in food. This project proposes natural alternatives such as beetroot and berry-based coloring to deliver color, flavor, and nutritional value without compromise. We also offer healthy alternatives by including postbiotics, prebiotics, vitamins and minerals in the paste.

The global pasta market is undergoing transformation, shaped by three major trends:

- **Health & Wellness**: Consumers increasingly seek pasta with functional benefits such as high-protein, low-carbohydrate content, and added fiber or micronutrients.
- **Personalization**: There is growing interest in tailor-made nutrition, especially among athletes, parents, and individuals with specific dietary needs.
- **Sustainability**: Packaging and ingredients are under scrutiny, with preference for eco-friendly and clean-label solutions.

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Traditional pasta products fail to meet these evolving expectations. The opportunity lies in offering a pasta line that combines visual appeal, functional health benefits, and personalized nutrition—while staying sustainable and child-friendly.

This case study explores the development and potential of **SmartPasta for Healthy Life**, an innovative concept that integrates:

- **Beetroot-based pasta**: Colored and flavored naturally for adults seeking variety and clean-label ingredients.
- **Children's fruit-colored pasta**: A nutritious and playful option designed to attract young eaters through taste and appearance.
- **Smart functional pasta**: High-protein, low-carb, gut-friendly options for health-focused consumers, athletes, and individuals with dietary restrictions.

The study covers the product development process, ingredient selection, market trends, sustainability strategies, and a roadmap for scaling from R&D to market launch. It aims to provide actionable insights and inspire future innovation in functional food products.

III. Market Analysis: (300 words)

The global pasta market is experiencing a period of significant diversification, driven by increased consumer interest in health, sustainability, and food innovation. Traditionally dominated by wheat-based products, the pasta segment is evolving to include functional, plant-based, high-protein, low-carb, and allergen-free variants. The global market size for pasta was valued at over **$45 billion in 2023**, and it is projected to grow at a **CAGR of 4.5% until 2030**, according to Market Research Future.

A particularly dynamic subsegment is **functional pasta**—products enriched with additional health benefits such as protein, fiber, vitamins, and probiotics. This category is expected to grow at **7–8% annually**, aligning with broader trends in functional and personalized nutrition.

Consumer behavior has shifted notably in recent years:

- Over **60% of global consumers** actively seek products with **clean labels** and natural ingredients.
- More than **40% of pasta consumers** report interest in **gluten-free or reduced-carb options**.
- There is a rising demand for **plant-based and high-protein alternatives**, especially among fitness-conscious individuals, vegans, and flexitarians.

Innovation in pasta also reflects **visual and sensory expectations**. Colorful, naturally pigmented products are gaining popularity, particularly among children and parents seeking nutritious, fun-to-eat

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meals. However, commercial availability of such products remains limited, creating **market opportunities** for brands like **SmartPasta for Healthy Life**.

Three dominant trends shape today's pasta market:

- **Health & Wellness**: Increasing awareness of diet-related health issues has led consumers to demand high-protein, low-carb, fiber-rich, and vitamin-fortified food options.
- **Personalized Nutrition**: From athletes to children and individuals with specific dietary needs (e.g., gluten sensitivity, veganism), people are seeking food tailored to their lifestyle.
- **Sustainability & Ethics**: Clean-label products, eco-friendly packaging, and plant-based innovations are becoming essential purchasing criteria.

The target market spans diverse demographics:

- **Young professionals** and **health-conscious adults** interested in clean eating.
- **Parents** looking for nutritious, child-friendly meal options.
- **Fitness-oriented consumers** seeking functional carbohydrates and protein sources.
- **Sustainability-minded shoppers** supporting eco-packaging and plant-based diets.

While many existing pasta brands offer specific benefits (e.g., high protein or gluten-free), *SmartPasta* stands out by combining multiple value propositions—health, customization, and sustainability—into a single, market-ready product line. This integrated approach addresses evolving consumer expectations and positions **SmartPasta** as a next-generation food solution.

IV. Research and Development: (500 words)

The development of **SmartPasta for Healthy Life** was guided by the vision of creating a next-generation pasta product line that integrates nutritional functionality, natural ingredients, sensory appeal, and sustainability (**Appendix 2 – Technology of production**).

1. Beetroot-Enriched Semolina Pasta

The concept of beetroot pasta emerged from a desire to break away from conventional pasta, which often lacks visual appeal and added health value. Kitchen trials tested beetroot juice, purée, and powder, ultimately selecting purée for its rich red color and mild earthy flavor. When combined with semolina flour and water, the dough achieved optimal firmness and elasticity.

Semolina was chosen for its nutty taste, low water absorption, and excellent cooking resilience. Air-drying at temperatures below 40 °C over 24–48 hours ensured the preservation of color and nutrients without the use of preservatives. Informal tasting panels—including students, athletes, and parents—responded positively to the product's color, texture, and compatibility with light sauces. Beetroot also

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enriches the product with fiber, folate, potassium, vitamin C, and antioxidants, supporting cardiovascular and digestive health.

2. Fruit-Purée Pasta for Children

To encourage healthy eating among children, a colorful variant was developed using white wheat and rice flours, blended with natural berry purées (blueberry, raspberry, strawberry, and blackberry). These ingredients contribute vibrant, naturally derived colors, antioxidants, and subtle fruity aromas. The pasta is shaped into fun forms such as stars, letters, or animals, making meals more playful and engaging. Parental feedback highlighted appreciation for the clean-label composition and the appeal of mild flavors and fun shapes. Rice flour improves digestibility, making this version ideal for young eaters and potentially suitable for gluten-sensitive individuals.

3. Paste for athletes.

This is a **High-Protein Pasta** made from lentil, pea, or black bean flour, enriched with prebiotics (inulin), postbiotics, and plant-based protein. Aimed at fitness enthusiasts and athletes, it supports muscle health and digestion. Promoted via fitness influencers, packaged in compostable bags with QR codes for personalized meal guidance.

Each of these three types of pasta can be developed by adding postbiotics, prebiotics, vitamins and minerals at the production stage.

A **postbiotic** is a **bioactive compound** produced by **probiotic microorganisms** during the **fermentation** process. Unlike **probiotics** or **prebiotics**, postbiotics are **non-living** and include the **metabolic byproducts** of probiotics—substances that can still deliver health benefits even after the bacteria are no longer alive. Promoted via educational campaigns in collaboration with nutritionists.

Vitamin-Fortified Pasta. Designed for vegans and individuals with nutrient deficiencies, this version is enriched with iron, vitamin D, and B12. Marketed as a functional food for everyday wellness, it is available in convenient single-serve sachets.

SmartPasta for Healthy Life show how the traditional food can be reimagined with a science-driven, consumer-focused, and environmentally responsible approach.

The R&D process reflects a commitment to developing inclusive and personalized nutrition solutions that match the expectations of modern, health-conscious consumers.

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V. Product Description: (500 words)

SmartPasta for Healthy Life is a next-generation pasta line that combines health, innovation, and sustainability into one versatile food product range. Each variant is designed to meet the needs of specific consumer groups, providing functional benefits without compromising taste, texture, or visual appeal (**Appendix 2 – Technology of production**); (**Appendix 3 – Beetroort pasta production**);.

1. Children's Fruit-Colored Pasta

This pasta is formulated with a blend of white wheat flour for structure and rice flour for lightness and digestibility, making it ideal for young children. Natural purées from berries—strawberries, raspberries, blueberries, and blackberries—are used to achieve vibrant colors and fruity aromas without artificial dyes or additives. These purées also contribute antioxidants and vitamins, improving the overall nutritional value.

Fun shapes like stars, animals, and letters enhance the sensory experience and encourage healthy eating habits in children.

2. Beetroot-Enriched Semolina Pasta

Designed for adults seeking functional yet gourmet options, this pasta uses semolina flour combined with beetroot purée to produce a rich, naturally red product. The semolina provides a firm texture, slightly nutty taste, and high cooking resilience, while beetroot enriches the pasta with folate, fiber, potassium, and antioxidants. This variant is best served with light sauces such as basil pesto or lemon-infused olive oil and offers a colorful, nutritious alternative to conventional pasta.

3. High-Protein Pasta

Made from legume-based flours like lentil, pea, or black bean, this version is tailored for **fitness enthusiasts and athletes**. It delivers a significant protein boost per serving, supporting muscle recovery and satiety. Marketed through fitness influencers and slogans such as *"**Pasta for muscle growth**!"*, this variant is packaged in compostable bags featuring QR codes for personalized fitness meal plans and nutrition tracking.

Each of the pastes can be further enriched with:

- **Prebiotic and Postbiotics**. **Developed for consumers interested in** digestive wellness**, this variant can includes prebiotics fibers as** inulin **and postbiotic. It supports gut health and immune function and is ideal for inclusion in daily health routines. Promoted through educational campaigns and partnerships with nutritionists, it is available in premium** glass or metal containers**, emphasizing its premium positioning and sustainability.**
- **Vitamins-Fortified**

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This functional food option is enriched with **iron, vitamin D, and B12**, designed for **vegans, vegetarians**, and individuals with micronutrient deficiencies. It supports energy, bone, and immune health. Marketed as *"The pasta that powers your day"*.

Unique Selling Proposition (USP)

SmartPasta's edge lies in its ability to integrate **natural ingredients**, **scientific nutrition**, and **consumer personalization** into one cohesive product family.

With innovative recipes, engaging shapes, targeted functionality, and sustainable packaging, **SmartPasta** meets the needs of a rapidly evolving, health-conscious, and eco-aware global audience.

VI. Marketing and Promotion: (300 words)

The marketing strategy for **SmartPasta for Healthy Life** is designed to reflect the brand's core message: **"Eat Smart, Live Smart**. The products will be positioned in the **premium functional food segment**, targeting health-conscious families, athletes, and consumers with special dietary needs (**Appendix 4 – Packaging**).

Launch Strategy

1. **Pilot phase** in small craft food shops to build curiosity and gather consumer feedback.
2. **National expansion** through selected retailers such as Whole Foods and health stores.
3. **International distribution** via e-commerce platforms and the official brand website.

Channels and Communication

- **Social Media**: Instagram, TikTok, and YouTube Shorts for recipe demos and playful content.
- **Influencer Partnerships**: Nutritionists, fitness bloggers, and parenting influencers.
- **Health Blogs**: Articles on gut health, children's nutrition, and clean-label eating.

Packaging and Visual Identity

The packaging will be made from **eco-friendly paper with a transparent window**, allowing consumers to see the actual colorful pasta—enhancing trust and eliminating the need for misleading images. Labels will be printed directly on the back of the pack, reducing waste and improving recyclability.

Children's pasta will feature **playful and educational designs**:

- Packaging with **shaped windows** (e.g., stars, bears) to showcase the product.
- Boxes with **mini-games or stories** related to ingredients or food adventures.
- **Kid-friendly nutrition facts** (e.g., "Blueberries help your eyes like a superhero!").

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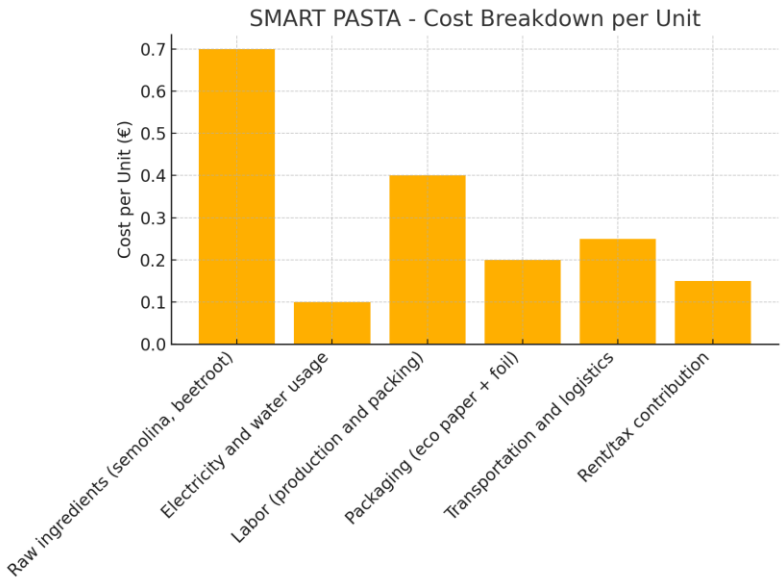
VII. Financial Analysis: (300 words)

The financial viability of the SMART PASTA project, specifically the beetroot-enriched pasta variant, is grounded in a detailed cost and revenue estimation. The production cost per 250 g pack includes the following components: raw materials (semolina, beetroot) – €0.70, utilities – €0.10, labor – €0.40, eco-friendly packaging – €0.20, logistics – €0.25, and facility/rent overheads – €0.15, resulting in a total unit cost of approximately €1.80.

To ensure sustainability and competitive positioning in the premium health food sector, a 40% markup is applied, leading to a retail price of €2.50–€2.70 per pack. In initial operations, small-batch production will be targeted at boutique organic shops and farmers' markets. Projected monthly sales in this pilot phase are between 300 and 500 units, corresponding to monthly revenue of €750–€1,350 and gross profits of around €270–€450.



A growth strategy is planned whereby early profits are reinvested into brand awareness campaigns, influencer partnerships, and digital presence. These activities are expected to boost demand and allow gradual scaling of production. Economies of scale will help reduce unit costs (e.g., through bulk ingredient purchasing and improved production efficiency), thus enhancing margins.

Assuming steady growth and expansion into national health food chains within 18–24 months, we estimate annual sales of 10,000–15,000 packs. This could generate revenues of €25,000–€40,000 and annual net profits exceeding €6,000–€10,000. Based on initial investment needs (~€5,000 for equipment,

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setup, and marketing), the return on investment (ROI) is expected to surpass 100% within the first two operational years, demonstrating both commercial and sustainable potential.

VIII. Challenges and Risks: (200 words)

The development and market launch of SMART PASTA face several notable challenges:

1. **Market Entry** – Securing shelf space in health-oriented and organic stores may be manageable, but larger supermarket chains typically require proof of market demand.

   Mitigation: Begin with small-batch placement in specialty shops and farmers' markets to build a sales record and consumer following.

2. **Consumer Acceptance** – The unfamiliar red color of beetroot pasta may deter consumers who are unaware of its benefits.

   Mitigation: Launch educational campaigns with recipe suggestions, health facts, and influencer endorsements to normalize the product.

3. **Ingredient Sourcing** – Fresh beetroot supply may fluctuate in quality, availability, and price throughout the year.

   Mitigation: Partner with multiple local suppliers and explore semi-processed or frozen beetroot alternatives for consistency.

4. **Cost Competitiveness** – Production costs are higher compared to mass-market pasta, affecting retail pricing.

   Mitigation: Focus on the premium health niche and gradually reduce per-unit costs through process optimization and scale.

5. **Regulatory Compliance** – Expanding to international markets requires adherence to complex food labeling and safety regulations.

   Mitigation: Engage food law consultants early to ensure compliance with EU Regulation 1169/2011 and national standards.

IX. Internationalization Strategy (250 words)

The internationalization of **SmartPasta for Healthy Life** will build on its health-oriented concept, product diversity, and compliance with global food standards. The range—comprising beetroot-enriched semolina pasta, fruit-purée pasta for children, and functional high-protein options—allows adaptation to different cultural and dietary preferences. Flavor profiles can be adjusted to regional tastes, such as Mediterranean

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(olive oil, herbs) or Asian (chili, turmeric) variants, while maintaining the clean-label and nutritious identity of the brand.

Market entry will begin through **digital and direct communication channels**, including an interactive website, social media promotion, and participation in international fairs and food events. Smart, language-specific packaging with **QR codes** will link consumers to localized digital content such as nutrition facts, recipes, and sustainability messages.

To strengthen accessibility and cultural acceptance, SmartPasta will comply with **EU Regulation 1169/2011** and **FDA labeling standards**, and pursue **Halal and Kosher certifications**. Two product lines will be developed—one with egg-derived protein and one fully vegan—ensuring inclusivity across consumer groups.

Distribution will target **leading retailers** (e.g., Lidl, Aldi, Tesco) and specialized health-food networks emphasizing sustainability. Partnerships with **nutrition experts and influencers** will enhance visibility and trust. By combining regulatory compliance, localized product adaptation, and strong digital engagement, SmartPasta aims to establish itself as a **globally relevant, locally appealing functional food brand** promoting healthy lifestyles across markets.

X. Sustainability Impact (250 words)

The sustainability impact of **SmartPasta for Healthy Life** is assessed across its entire lifecycle—from ingredient sourcing and production to packaging, distribution, and waste management. The concept prioritizes **environmentally responsible, locally sourced, and recyclable materials**, aiming to minimize the product's carbon footprint and contribute to a circular food economy.

Ingredients and sourcing: SmartPasta is made primarily from high-quality semolina flour, eggs, fruits, and vegetables. Most ingredients—such as eggs, berries, and seasonal vegetables (carrots, pumpkins, beets)—are sourced locally in Bulgaria to reduce transport emissions and support regional agriculture. Only semolina is imported from Italy due to its superior pasta-making quality. By using fresh, seasonal produce, the process reduces food waste and ensures both high nutritional value and distinctive taste.

Production and energy use: The production process follows eco-efficient principles. During warm seasons, pasta is **solar-dried**, cutting energy use significantly. In cooler periods, **low-energy traditional drying** methods are applied to maintain consistent quality. Water use is optimized for dough preparation and cleaning, with waste minimized wherever possible.

Packaging and lifecycle: Packaging consists of **paper-based material with a small transparent biodegradable foil**, fully recyclable and compliant with food safety standards. Plant-based inks and non-

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toxic adhesives further enhance the eco-profile. The product's dry form provides a **shelf life of over one year**, extending usability and reducing food loss.

Distribution and carbon footprint: The main environmental challenge is transportation. To address this, SmartPasta plans to adopt **electric or hybrid vehicles** and optimize logistics routes to reduce CO_2 emissions.

In summary, SmartPasta integrates sustainability at every stage—combining **eco-friendly materials, renewable energy, local sourcing, and waste minimization**—to deliver a nutritious, long-lasting, and environmentally responsible food product.

XI. Digital and Technological Integration (max. 250 words)

The Smartpasta web page presents SmartPasta's online store with a brief message about "better pasta" made with transparent ingredients and fast EU delivery. It highlights the main product categories — Beetroot pasta, Kids edition, Pasta for athletes, and Other products—with visual banners and a link to the "Beetroot pasta" subsection (**APPENDIX 5**).

- SMART PASTA leverages digital tools throughout its lifecycle—from product design to consumer engagement. In development,
- **AI-powered trend analysis** to monitor emerging health food preferences (e.g., low glycemic index, plant-based diets) across global markets, ensuring the pasta formulations remain relevant.
- **Smart labeling** via QR codes
- **Social media listening tools** (e.g., Sprout Social, Brandwatch) to identify what language and visuals resonate most with our core demographics: health-conscious young adults, parents, and recreational athletes.
- **E-commerce integration** through platforms like Shopify or Etsy for artisan batches, and use
- **Blockchain-based traceability tools** to certify origin and production conditions for B2B partners.

XII. Make a consumer communication plan (max. 250 words)

Clearly convey SmartPasta's health, taste, and sustainability benefits to parents/kids, active consumers, and health-conscious adults—driving trial, trust, and repeat. (APPENDIX 6)

Core Message (brand line): *Eat Smart, Live Strong.*

Benefit Pillars:

- **Health:** High-fiber, clean-label, real veggies (beetroot, spinach, carrot).
- **Performance (Athlete):** Smart carbs + beet nitrates for recovery.
- **Family (Kids):** "Heroes Eat Smart!"—fun color, easy recipes.

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- **Planet:** Eco pack; short supply; CO_2 transparency via QR.

Visual System:

- **Icons:** Fiber, plant-based, no preservatives, eco-pack, CO_2.
- **Color codes:** Kids—bright blue/yellow; Athlete—green/graphite; Classics—beet red/leaf green.
- **On-pack QR:** "Scan for 3 recipes + origin & footprint."

Text System (on-pack & web):

- **Proof:** "High fiber • No preservatives • Locally sourced where possible."
- **Story panel:** "From farm to fork—see your pasta's journey."

Channels & Tactics:

- **In-store:** Tastings, recipe cards, shelf stoppers with QR.
- **Digital:** IG/TikTok Reels (15–45s recipes), YouTube Shorts (dietitian tips), email welcome + post-purchase flows.
- **Community:** School fairs (Kids), park runs/gyms (Athlete), farmers' markets.
- **Influencers:** 2 family creators, 2 coaches/dietitians, 1 eco blogger.

XIII. Conclusion: (150 words)

The **SMART PASTA** project presents a unique opportunity to bridge health, innovation, and sustainability in the pasta market. By incorporating functional ingredients such as beetroot, berries purre, prebiotics, postbiotics and different type of plant flours and using clean-label, eco-friendly packaging, the product aligns with current consumer demands for nutritious and conscious food choices.

With a clear financial strategy, targeted marketing, and phased market entry, **SMART PASTA** is positioned to grow from a niche innovation into a scalable, impactful brand. The project addresses modern dietary trends while offering differentiation through visual appeal, taste, and health benefits. Ultimately, **SMART PASTA** combines scientific insight with culinary creativity, promising both commercial viability and social value by promoting healthier lifestyles and smarter food decisions.

XIV. References and Appendices (up to 20 references)

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OUR LOGOS

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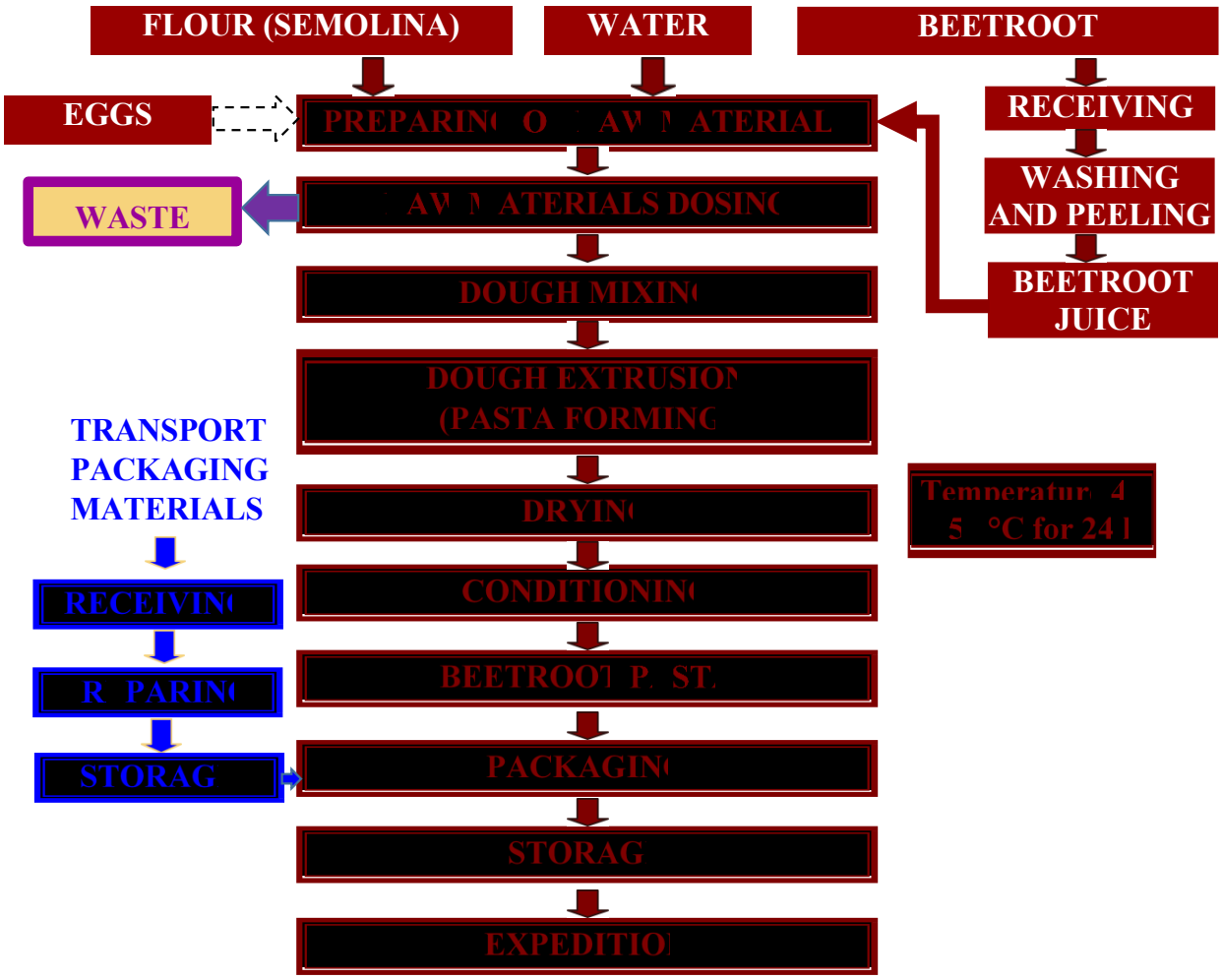
BEETROOT PASTA



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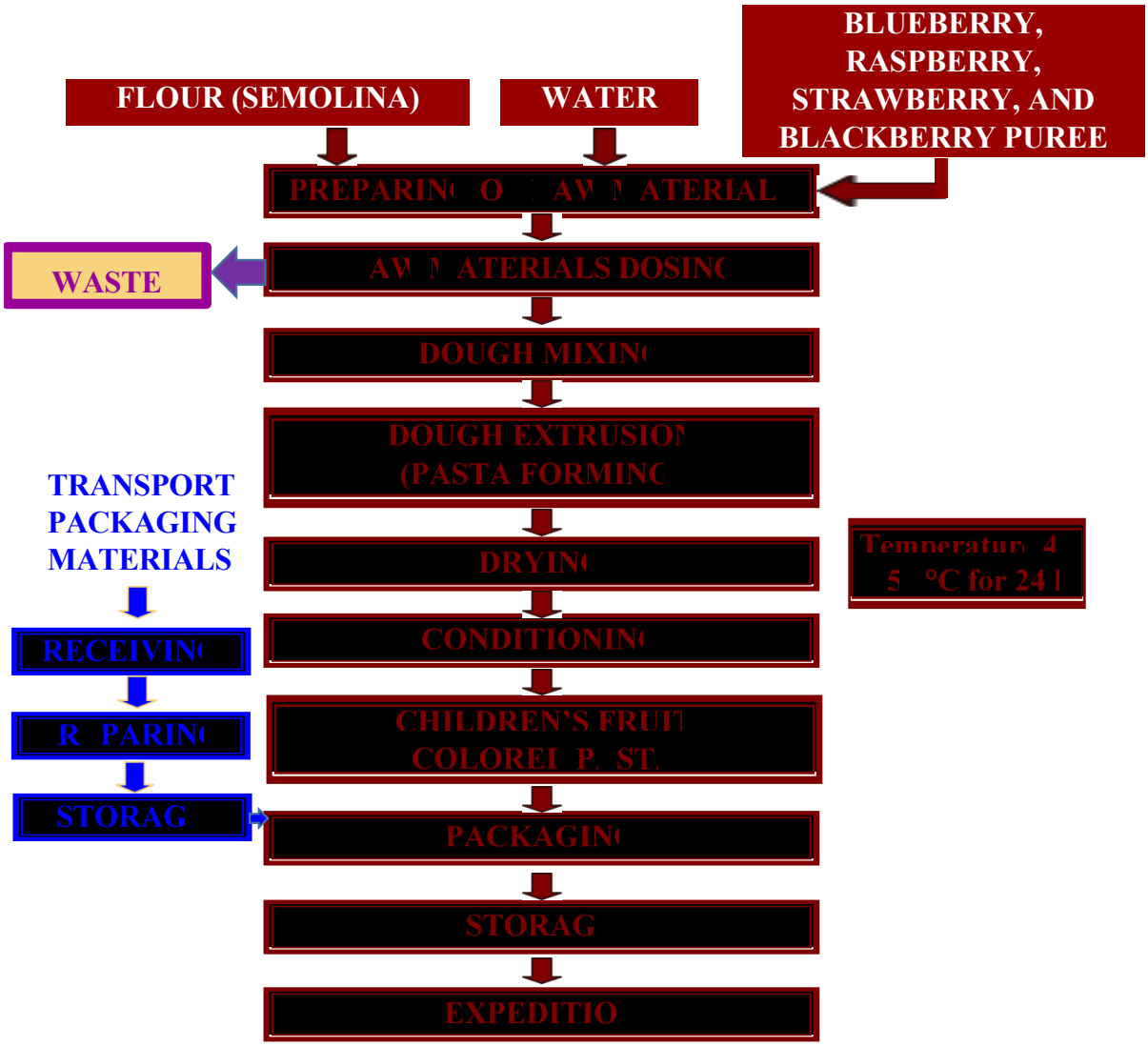
CHILDREN PASTA



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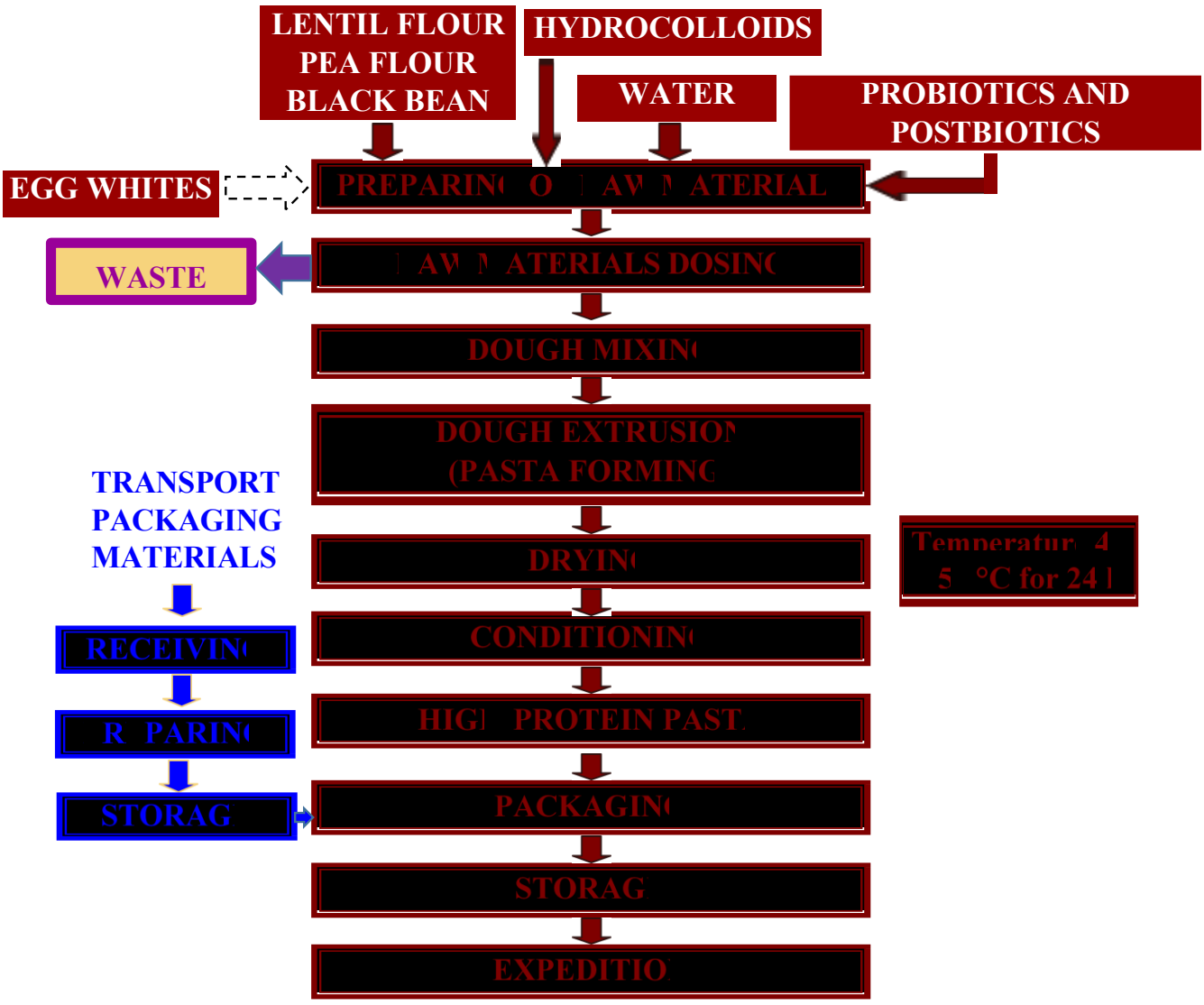
HIGH PROTEIN PASTA WITH PREBIOTICS AND POSBIOTICS



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BEETROOT PASTA PRODUCTION

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APPENDIX 4

SUSTAINABLE PACKAGING AND PROMOTION

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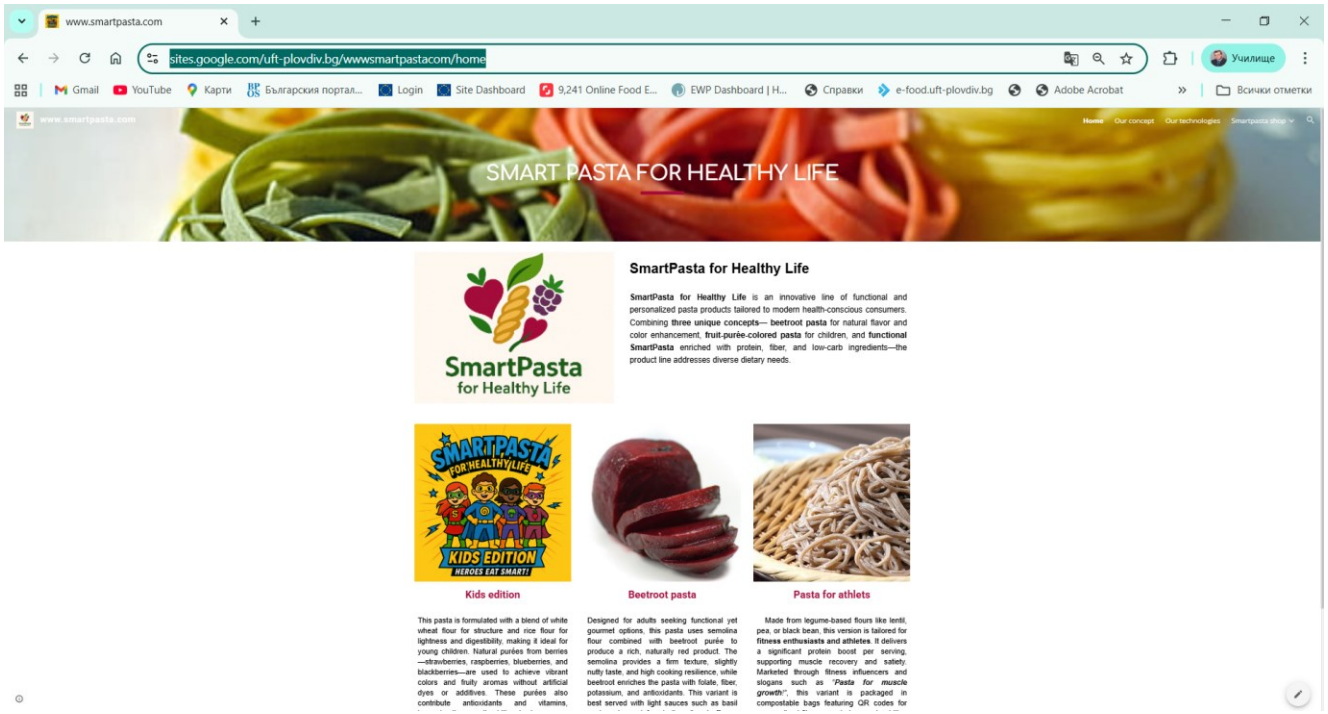
APPENDIX 5

SMART PASTA WEB PAGE



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CONSUMER COMMUNICATION PLAN

SMART PASTA for Healthy Life — Consumer Communication Plan

CORE AUDIENCES

- Parents & Kids — "Heroes Eat Smart!" Veggies made fun.
- Active & Sports — Fuel • Perform • Recover (smart carbs + nitrates).
- Health-conscious Adults — Plant-based • Clean label • Eco.
- Retail/HoReCa — Premium differentiation + POS kits.

MESSAGING HIERARCHY

- Primary: Everyday pasta + real veggies (color, taste, fiber).
- Proof: High fiber • Real beetroot • No preservatives • Local • Eco pack.
- Kids (blue): Superhero boy + "Heroes Eat Smart!" + 3 recipes.
- Athlete (green): Smart carbs + nitrates • Post-workout bowls • Coach tips.
- Transparency: QR → origin, nutrition, CO_2 per pack, report.

CHANNELS

- In-store: Shelf stoppers, tastings, recipe cards, POS QR.
- Digital: IG/TikTok Reels, Shorts, blog/SEO, email.
- Community: Farmers' markets, school fairs (Kids), gyms/runs (Sport).
- Influencers: Family creators, sports coaches, dietitians, eco bloggers.

4-Week Content Sprint

W1 — Awareness

- Launch reel: Why red pasta?
- UGC hashtag #SmartPastaHeroes
- Retailer tags + QR

W2 — Education

- Dietitian 45s clip (nitrates/fiber)
- Blog: benefits
- In-store tasting

W3 — Use-cases

- 3×15s recipes: kids/sport/vegan
- Story poll: next flavor

W4 — Conversion

- Coupon drop
- Giveaway (kids/sport)
- Store shout-outs

KPIs & Optimization

- Reach & Engagement: Impressions, watch-through, saves/shares.
- Trial & Purchase: Sampling → buys, coupon redemptions, repeat rate.
- Transparency: QR scans, time on page, survey/NPS.
- A/B testing: hooks, thumbnails, captions, CTAs.
- Monthly sentiment & feedback loop → iterate content & recipes.

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