



Vinea

iz vinove loze



ABOUT US:

We are Team VINĚA, from a town which resides in the heart of Herzegovina's Brotnjo region known as – Čitluk

Our school (Osnovna škola fra Didaka Buntića Čitluk) is the home of our humble, yet meaningful headquarters.

Our team consists of:

-three knowledgeable students -

(Miho B., Zoran P., Petar P.),

-Two well-read and refined mentors -

(Tereza P. - Project mentor, provided expert guidance on research, product development, and sustainability integration.

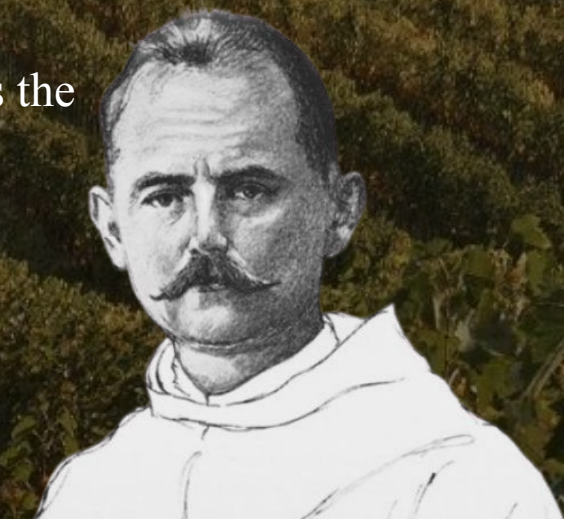
Božana B. - Co-mentor, advised on methodology, interdisciplinary collaboration, and educational best practices.)

Our „Big Idea”:

„Circular Bioenergy from Vineyard Waste”

We ask ourselves „The Essential Question”:

„How can vineyard waste drive circular energy innovation, while also sustaining local development and creating eco-friendly products that promote entrepreneurship?”



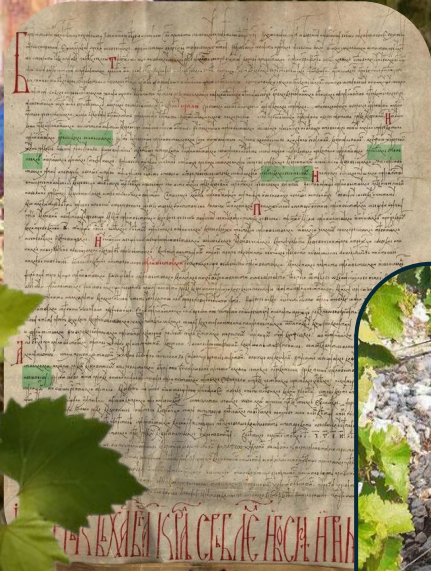
A Region Rooted in Viticulture:

Brotnjo has a centuries-long wine tradition.

In 1353, King Tvrtko II. described wine from this region as “divine.”

The oldest wine cellar dates back to 1855 in a Brotnjo village called - Gradnići.

Our “vineyards in stone” are considered a world rarity. Viticulture shaped our identity, education, and economy for generations.



The Challenge:

Every year, large quantities of vine waste are discarded:

Grape pomace,
Seeds,
Vine branches,

Although rich in organic matter, this waste is underutilized.

We asked ourselves:
Can vineyard waste become a valuable resource?



Skin: 50%

Seeds: 25%

Stalks: 25%





Why We Selected This Challenge

We come from a winemaking region where this issue is visible every year. Instead of seeing pomace as waste, we recognized it as an untapped resource.

We chose this topic because it connects our local tradition with modern science and allows us to create real economic and environmental value from something already available in our community.

Why It Is a Real-World Problem

Organic waste contributes to greenhouse gas emissions. Energy prices continue to rise, and industries are searching for renewable solutions. Consumers increasingly demand sustainable and natural products. Our project responds directly to these challenges by transforming vineyard waste into valuable products and renewable energy.

Our Vision: One Vine – Three Sources of Power

From a single vine, we developed three value streams:

Seeds – health & cosmetic products

Pellets – renewable heating energy

Hydrogen – potential clean fuel

From vineyard to hydrogen.
From waste to energy.
From tradition to innovation.



Scientific Foundation :

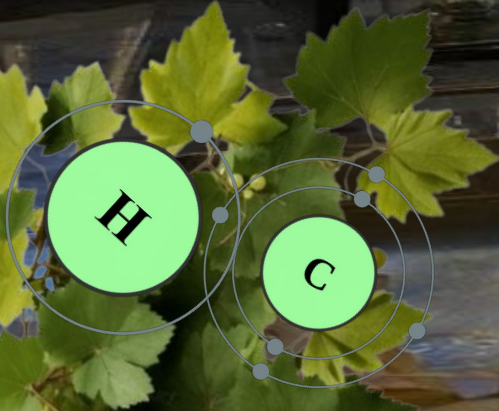
Every part of the vine is organic matter.

Organic matter contains two key elements:

- Carbon
- Hydrogen

These elements form the foundation of energy production.

By combining traditional agriculture with modern scientific principles, we transformed biological waste into functional products and renewable energy sources.



Seed-Based Product Development:

We developed high-value products from grape seeds:

Grape seed oil (produced in cooperation with the Špoljar family)

Grape seed flour (ground at 8% moisture for optimal quality)

Cosmetic products (bath products and shampoo with added preservatives for stability)

These products are natural, sustainable, and market-ready.



Pellet Innovation:

We created a pellet from grape pomace.

Composition:

- 80% grape pomace
- 20% vine branches

Branches provide structural strength and durability.

The calorific value equals traditional beech wood pellets.

This transforms agricultural waste into renewable heating energy.





From Tradition to Market Demands:



Our project was not created only from tradition
- it responds to real market needs.



Today's consumers increasingly demand
- Natural ingredients

- Local authenticity

- Eco-friendly production

- Renewable energy solutions

Vinea directly answers these demands.



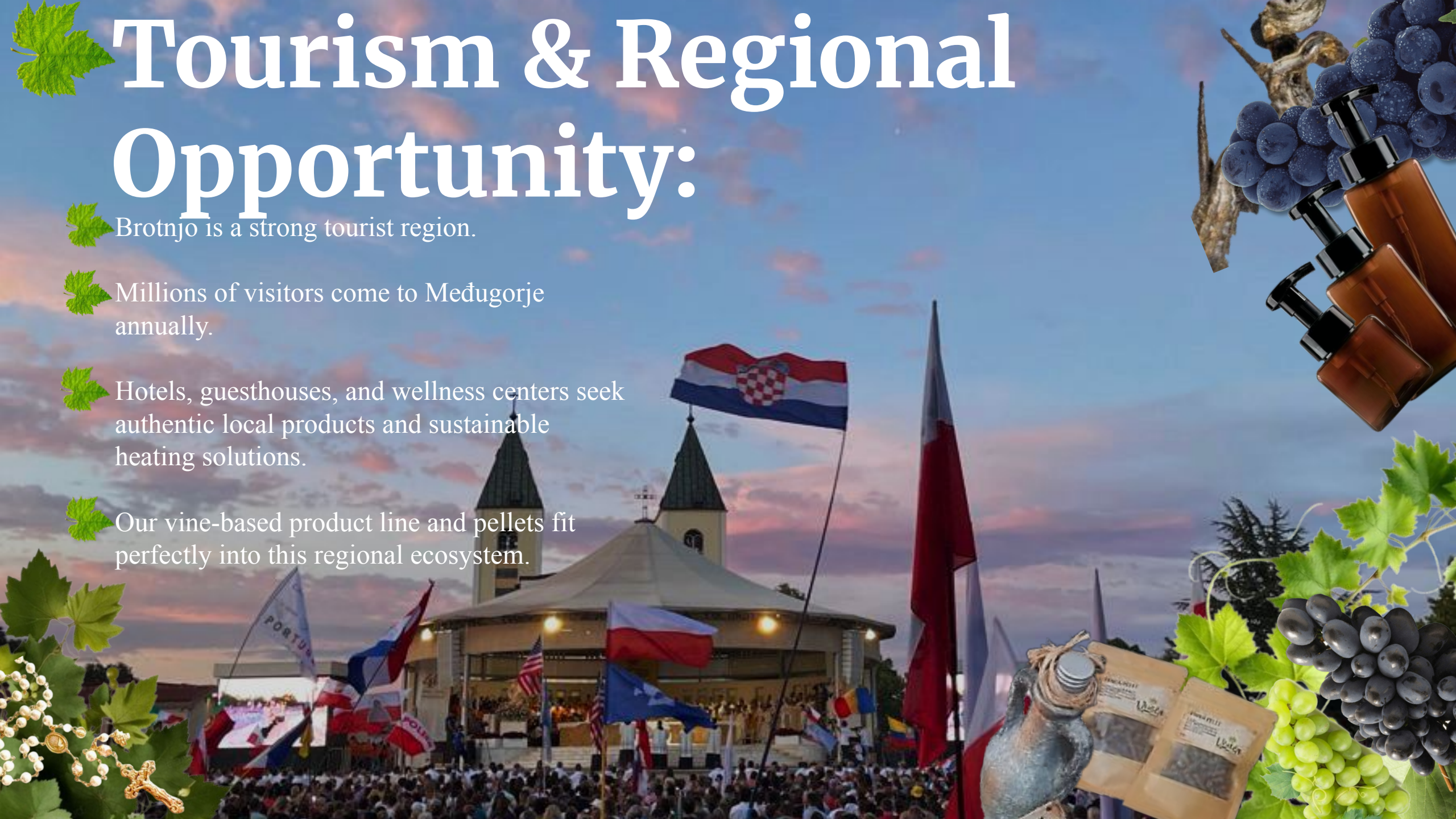
Tourism & Regional Opportunity:

Brotnjo is a strong tourist region.

Millions of visitors come to Međugorje annually.

Hotels, guesthouses, and wellness centers seek authentic local products and sustainable heating solutions.

Our vine-based product line and pellets fit perfectly into this regional ecosystem.

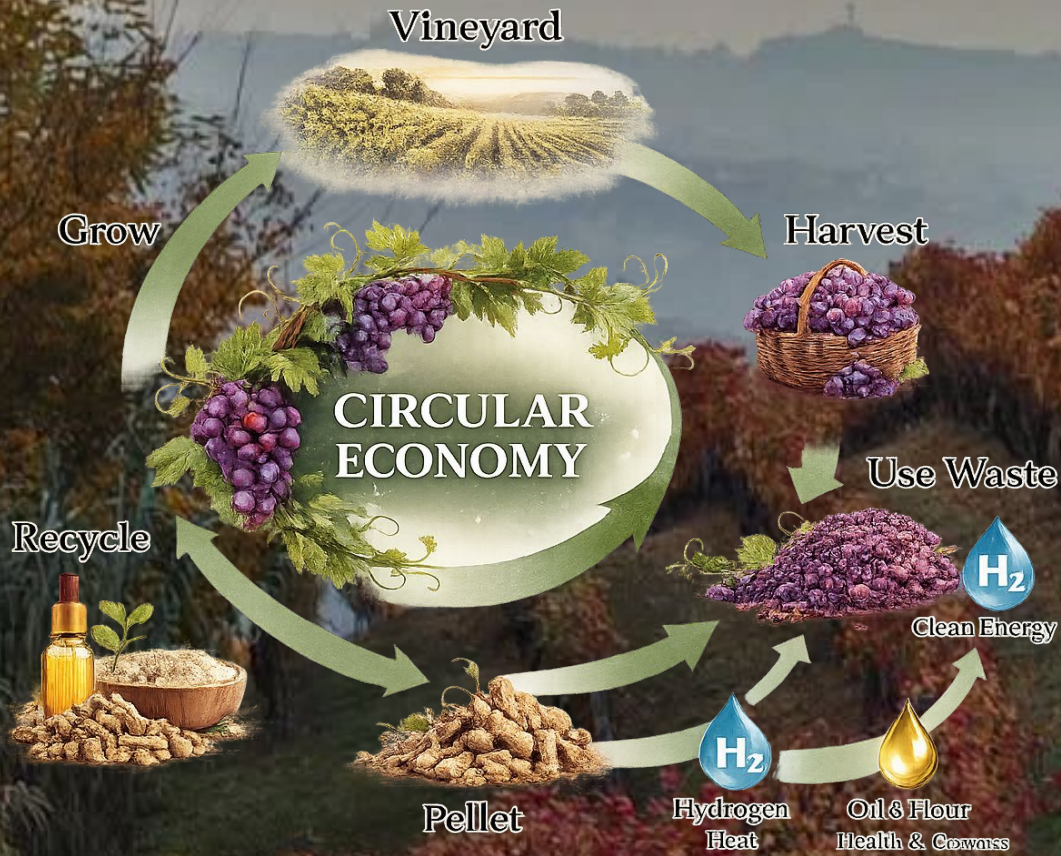


Environmental & Economic Impact:

Our solution:

- Reduces agricultural waste
- Creates renewable energy
- Generates additional income streams
- Supports local entrepreneurship
- Strengthens sustainable tourism

Waste becomes value.
Tradition becomes opportunity.



Actions Taken & Implementation:



This is not just a concept - it is implemented. We:

- Cooperated with experienced producers,
- Produced grape seed oil,
- Processed flour under controlled moisture levels,
- Developed cosmetic prototypes,
- Calculated and tested pellet ratios,
- Successfully produced pellet samples,



We transformed research into real, tangible prototypes.



Team & Community Support :

This project is built on:

- Teamwork
- Mentorship
- Local collaboration
- Persistence

Every innovation begins with cooperation.

We proved that young people from Brotnjo can create solutions with real market value.



Conclusion: A Modern Future from an Ancient Vine

We connected:

- Tradition
- Science
- Ecology
- Entrepreneurship

Our vineyards are no longer just fields of grapes - they are fields of innovation and sustainable energy.

We proved, that an old region can have a modern future.

Thank you.

Come and visit our Website: Vinea-mission