

Proceeding Paper

Important Parameters Connected to Farmers' Networking and Training That Give Added Value to "Fasolia Vanilies Feneou" and "Fava Feneou" Products [†]

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Abstract: The official designation of the bean "Fasolia Vanilies Feneou" and grass pea "Fava Feneou" as Protected Geographical Indication (PGI) products do not extend protection to their cultivated genetic material due to their non-inclusion in the National Catalog of Varieties [EC 2008/62/EK (official Greek Gazette) FEK 165/30-January-2014] as recognized traditional cultivars. This omission poses a significant risk to the genetic diversity of these varieties, potentially leading to the loss of their distinct characteristics, decreased yields, and compromised quality. The primary objective of this project is to ensure the preservation of these local varieties through a comprehensive study of their genetic variability. Additionally, it aims to adhere to official protocols for describing and subsequently registering these varieties in the National List of Varieties. This registration will enhance the product's value and secure its unique identity. The experimentation phase of the project focuses on evaluating the landrace to select plants that demonstrate improved productivity and quality. This work presents the parameters connected with the description of the unique identity of this product; its origin, traceability, and local agricultural practices; and specific product characteristics that will contribute to this. The product will be utilized by Kiato Union IKE and, at the same time, farmers will be trained in the excellent seed reproduction and production of the product. This initiative promises several benefits for the agricultural cooperative and producers in Feneos.

Keywords: *Phaseolus vulgare* L.; *Lathyrus* sp.; landraces; added value; biodiversity protection



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1. Introduction

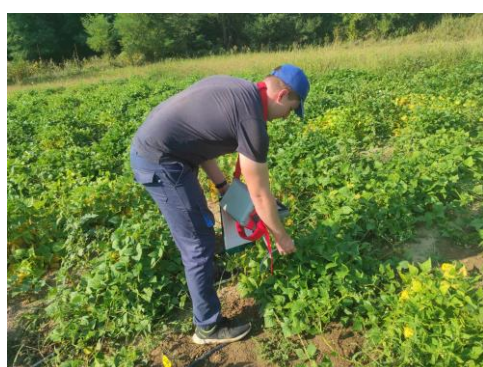
The common bean is a globally regarded legume that is a significant supplier of top-notch proteins, carbohydrates, vitamins, minerals, dietary fiber, phytonutrients, and antioxidants for human consumption. Many of these substances have substantial beneficial effects on human well-being. Consequently, the common bean could be considered a promising functional food [1,2]. Furthermore, recent studies have unveiled the health-promoting nutraceutical potential of grass peas [3]. Common bean and lathyrus cultivation have traditionally formed an integral part of rural economies in Greece [4]. Production has traditionally revolved around local landraces cultivated by small-scale farmers employing

low-input production systems. As members of the Fabaceae family, common beans and lathyrus also contribute significantly to sustainable agriculture through their capacity to fix atmospheric nitrogen, thereby reducing the dependence on fertilizer applications. Moreover, in contemporary agricultural contexts, landraces have the potential to assume a pivotal role in low-input cultivation systems, serving as a valuable reservoir of genetic material. This genetic diversity can enhance tolerance to both abiotic and biotic stresses and can facilitate the adaptation of modern cultivars to the challenges posed by climate change [5].

The dedication of the local agricultural cooperative KIATO UNION to cultivating common beans—“Fasolia Vanilies Feneou”—and grass pea—“Fava Feneou”—is paramount for preserving the cultural heritage of Feneos. Project M16SYN2-00320 is geared towards securing and conserving the indigenous variety that serves as the source of the PDO product under consideration. This goal will be realized by applying established official description protocols and capitalizing on existing knowledge to characterize and describe the genetic material.

2. Material and Methods

The initial phase of the project’s first year involved conducting a pilot study to evaluate the landraces’ genetic diversity and identify plants demonstrating enhanced productivity and quality while preserving all inherent plant characteristics for product production. The genetic material employed in this study consisted of common bean—“Fasolia Vanilies Feneou”—and grass pea—“Fava Feneou”—varieties of seeds sourced from the Kiato Union. The experiment was conducted during the 2022–23 growing season on the Institute of Genetic Improvement and Plant Genetic Resources’ farm in Thessaloniki Therme (for grass peas) and on the farm of the University of Western Macedonia-Department of Agriculture (for common beans) (Figure 1). Six hundred plant positions were established for each landrace with low plant density. All observations were made at the individual plant level and pertained to various agronomic traits. Moreover, a field experiment was established in the area of Feneos, ~1 ha, for both landraces to study their genetic variation (Figure 1). Three research Institutions (ELGO-Dimitra, University of Western Macedonia, and International Hellenic University), the local Agricultural Community represented by the agricultural cooperative of Florina, an NGO Aegilops, and an Advisor (Tsiipi Anthoula) cooperated under the PAA M16.1–16.2 project (M16SYN2-00320) to achieve this goal.



(a)



(b)

Figure 1. Field experiments: (a) in the area of Feneos; (b) in the area of the University of Western Macedonia-Department of Agriculture.

3. Results and Discussion

The official designation of vanilla bean and fava bean as Protected Geographical Indication (PGI) products does not extend protection to their cultivated genetic material due to their non-inclusion in the National Catalog of Varieties [EC 2008/62/EK (official Greek Gazette) FEK 165/30-January-2014] as recognized traditional cultivars. This omission

poses a significant risk to the genetic diversity of these varieties, potentially leading to the loss of their distinct characteristics, decreased yields, and compromised quality. The primary objective of this project is to ensure the preservation of these local varieties through a comprehensive study of their genetic variability.

For beans, the yield ranged from 10 to 400 g per plant, the number of pods ranged from 7 to 330 per plant, flowering ranged from 42 to 56 days, the growth type was dwarf, and the biological cycle was late. Similar variability was observed for lathyrus.

These crops are staples of the agricultural landscape and represent a rich and enduring part of the local tradition and identity. However, the continued cultivation of these crops is under threat due to the risk of genetic erosion. Common beans, such as “vanilla”, and grass peas, such as “fava”, are grown on approximately 400 hectares in the Feneos region. This expansive cultivation area demonstrates these crops’ substantial role within the local agricultural community. Moreover, they contribute substantially to the local economy, estimated at a significant figure. Protective interventions are urgently needed to ensure the ongoing cultivation of common beans—“*Fasolia Vanilies Feneou*”—and grass peas—“*Fava Feneou*”—and to preserve their cultural and economic significance. These interventions should focus on maintaining genetic diversity, implementing sustainable farming practices, and raising awareness about the critical importance of these crops locally and beyond. By taking these measures, we can safeguard the future of these crops and ensure they continue to be vital elements of Feneos’s agricultural and cultural legacy.

4. Conclusions

Currently, vanilla beans and fava beans are cultivated on approximately 4000 hectares, yielding around 3 tons per hectare, with a market price of roughly EUR 2.8 per kilogram. This cultivation plays a pivotal role in the local agricultural community of Feneos, contributing significantly to the economy; the anticipated benefits of implementing this program are expected to yield approximately a 25% annual profit increase. This increase will be derived from a combination of factors, including improved productivity due to the utilization of enhanced genetic material, improved consulting services, and increased market value due to the authentication of the product’s origin and quality.

The comprehensive strategy of project M16SYN2-00320, funded within the Agricultural Development Program 2014–2020 (Measure 16), specifically Sub-Measure 16.1–16.2, aims to enhance the preservation and subsequent utilization of this valuable resource by completing the following:

1. Register and identify the landrace with new legislation and EU directives using the provided description protocol.
2. Define the protected variety and apply for its registration in the National List of Varieties.
3. Establish and implement an innovative framework/process to disseminate the best conservation and seed production practices for the landrace within the region of origin, ensuring certification and seed purity. This initiative will be executed through collaboration between KIATO UNION and the support of research institutes and Agricultural University researchers.
4. Authenticate the landrace through morphological and qualitative characteristics and DNA techniques.
5. Provide consulting services to improve farming techniques for farmers, including field schools, e-learning, online applications, and networking via an online platform.
6. Document reduced product inputs.

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