Interreg NEXT Black Sea Basin

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AGRICOOP

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Cooperation through Tech-Based Practices to Struggle Invasive Species and Climate Change for a Sustainable and Resilient Agriculture

CONSOLIDATED NATIONAL REPORT



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Varna Economic Development Agency

AGRICOOP PROJECT
ACTIVITY A1.1 CONSOLIDATED PARTNER REPORT

Identification and Prioritisation of Agricultural Crops Affected by Climate Variability and Invasive Alien Species in the Black Sea Basin

Programme / Project	Interreg NEXT Black Sea Basin Programme / AGRICOOP (BSB01005)
Activity	WP1 – Activity A1.1
Reporting scope	Consolidated results of LP1–TCE, PP2–VEDA, PP3–BSU and PP4–OMU

1. Executive Summary

This consolidated report synthesises the national evidence generated by the AGRICOOP partnership under Activity A1.1 in Trabzon and Samsun provinces in Türkiye, Varna Region in Bulgaria, and the Autonomous Republic of Adjara in Georgia. The activity established a harmonised evidence base for identifying agricultural crops exposed to the interacting pressures of climate variability, climate change and invasive alien species (IAS), while maintaining a clear distinction between confirmed IAS, emerging surveillance targets and other economically important crop-health organisms.

Across the four partner territories, implementation combined documentary and scientific review, stakeholder consultation, targeted field validation, multi-criteria crop prioritisation and preparation of spatially referenced information for subsequent monitoring. The national assessments collectively demonstrate that crop vulnerability is context-specific but interconnected across the Black Sea Basin. The brown marmorated stink bug, Halyomorpha halys, emerged as the principal shared invasive pest because of its establishment, polyphagy, mobility and relevance to several priority crops in all participating countries. Hazelnut and maize constitute the most recurrent cross-border crop systems, while citrus, tea, kiwifruit, blueberry, stone and pome fruits, tomatoes, walnuts, paddy rice, beans and other vegetables reflect national and subregional production priorities.

The consolidated results provide the technical foundation for Activity A1.2 and related project work on repeated monitoring, early detection, georeferenced reporting, farmer-oriented guidance and climate-informed integrated pest management. The findings represent a structured baseline rather than a statistically representative estimate of IAS prevalence or a demonstration of direct causality between climate change and pest abundance.

2. Harmonised Methodological Framework and Action-Plan Alignment

Activity A1.1 was implemented through a common multi-source framework adapted to each national context. First, partners reviewed scientific publications, institutional documents, databases and relevant technical evidence to establish crop importance, climatic sensitivity, pest status, host associations and known damage pathways. Second, consultations with farmers, public authorities, researchers, professional organisations and other stakeholders were used to validate local priorities and management experience. Third, targeted field observations were undertaken to verify priority crop–pest relationships, document symptoms and developmental stages, and identify suitable monitoring and pilot locations. Finally, crops were assessed through four equally weighted criteria: agronomic importance, socio-economic importance, climate sensitivity and IAS exposure or impact. Evidence from literature, stakeholders and fieldwork was triangulated, with unsupported causal or quantitative claims excluded.

The national datasets differ in scale and design and are therefore consolidated analytically rather than pooled statistically. Multiple-response questionnaires are interpreted as records of perceived relevance, not prevalence estimates. Likewise, targeted field visits support validation and prioritisation but do not constitute representative epidemiological or population surveys.

This implementation sequence is fully aligned with the BSU-led Action Plan for Tasks T1–T15. It covers: structured national evidence review and preparation of traceable IAS inventories (T1–T4); stakeholder-based validation of crop vulnerability, IAS distribution and climate-related pressures (T5); development and application of the unified multi-criteria crop-prioritisation framework (T6–T10); participatory field validation, reassessment of vulnerability classifications and GIS-oriented spatial interpretation (T11–T14); and consolidation of crop–climate–IAS findings into the final analytical output (T15). BSU coordinated methodological harmonisation, quality control and comparative synthesis, while each partner generated and validated the evidence for its respective territory.

3. Consolidated National Results

Partner / area	Evidence and validation	Priority crops	Principal IAS / surveillance targets	Main conclusion
LP1 – TCE Trabzon, Türkiye	53 consultation participants; 36 questionnaires; 12 standardised farmer interviews plus field observations across eastern and western Trabzon.	Hazelnut, tea, maize, kiwifruit and beans.	Halyomorpha halys; Anoplophora chinensis; Orosanga japonica.	Hazelnut was the dominant crop priority and H. halys the most frequently identified IAS, with reported associations also involving maize, beans, tea, kiwifruit, fruit and vegetables.
PP2 – VEDA Varna Region, Bulgaria	50 documentary sources; 30 farmer/producer interviews; 15 targeted field visits in Aksakovo, Valchi Dol and Vetrino.	Five high-priority groups/eight crops: wheat, maize, cherries, plums, apples, pears, tomatoes and walnuts.	H. halys; Phthorimaea absoluta (syn. Tuta absoluta); Rhagoletis completa; Diabrotica virgifera virgifera; Drosophila suzukii, alongside other surveillance-relevant pests.	A diversified field-crop, fruit, vegetable and walnut portfolio requires differentiated monitoring, with explicit evidence-status classification.
PP3 – BSU Adjara, Georgia	37 reviewed sources; stakeholder records and expert consultation; 15 fieldwork missions, comprising 35 plot visits at 21 locations from 2 April to 13 August 2026.	Citrus, hazelnut, blueberry, kiwifruit and maize.	H. halys; Orosanga japonica; Aleurothrixus floccosus; Drosophila suzukii.	The assessment confirmed a polycrop monitoring framework and three core pilot zones: Gelauri, the BSU experimental agricultural plot in Tamari settlement, and Kakhaberi; Green

				Cape remains supplementary.
PP4 – OMU Samsun, Türkiye	24 stakeholder questionnaires; field validation in nine orchards across three districts; coverage of seven districts in the wider assessment.	Hazelnut, kiwifruit, maize, vegetables and paddy rice.	H. halys as the principal IAS; bark and ambrosia beetles retained as a separate secondary biotic-risk group.	The hazelnut–H. halys relationship was the strongest convergent priority; wider monitoring remains justified for other host crops because of the pest's polyphagy.

4. Cross-Border Synthesis and Strategic Relevance

Halyomorpha halys is the only pest that consistently occupies a central position across all four assessments. Its broad host range links perennial orchards, field crops and mixed smallholder systems and makes it the strongest candidate for harmonised comparative monitoring. Hazelnut is the principal shared high-value crop in both Turkish assessments and is also important in Georgia, whereas maize is represented in every national evidence base, although its production scale and economic role vary considerably. These commonalities create a practical basis for aligning surveillance indicators, trap-based monitoring, phenological observations and farmer reporting across borders.

National differences remain technically important. Adjara's humid subtropical agriculture gives particular prominence to citrus, blueberry and kiwifruit; Trabzon combines hazelnut and tea with small-scale maize, bean and fruit production; Samsun is dominated by the hazelnut–H. halys interface but includes paddy rice and diversified annual crops; and Varna represents continental/coastal systems dominated by cereals, oilseeds, fruit, tomatoes and walnuts. Consequently, the common framework should standardise the variables recorded—location, date, crop and phenological stage, pest identity and developmental stage, abundance or trap catch, damage symptoms, climatic conditions and management measures—while allowing crop- and pest-specific protocols at national level.

The assessments also converge on a cautious interpretation of climate–IAS relationships. Temperature, drought, soil-moisture deficit, irregular precipitation, frost and extreme rainfall may affect crop phenology, plant stress, pest survival and seasonal development. However, the available single-period evidence does not establish that observed pest abundance is directly caused by climate change. Robust attribution will require repeated, georeferenced and multi-year observations integrating meteorological variables, pest population dynamics, crop phenology, damage and yield or quality indicators.

5. Contribution to Subsequent AGRICOOP Activities

In accordance with the Action Plan, the consolidated A1.1 package brings together the partners' scientific and institutional evidence, annotated IAS information, national priority-crop portfolios, crop–IAS vulnerability assessments, stakeholder and field-validation results, pilot-area information and GIS-oriented datasets. These outputs provide a shared technical basis for: (i) selecting crop–IAS combinations and pilot locations for Activity A1.2; (ii) establishing interoperable monitoring and georeferenced data structures; (iii) developing early-warning thresholds and local reporting pathways; (iv) testing mechanical, biotechnical and integrated management measures; (v) preparing practical guidance for farmers and public authorities; and (vi) facilitating the transnational exchange and transfer of environmentally responsible practices. Priority should be given to systematic H. halys surveillance, complemented by nationally relevant monitoring of other verified or emerging IAS.

6. Consolidated Conclusion

Activity A1.1 successfully transformed heterogeneous national information into a coherent Black Sea Basin baseline on priority crops, invasive pests and climate-related agricultural vulnerability. Its principal transnational result is the identification of Halyomorpha halys as a shared priority IAS and of hazelnut and maize as recurrent host-crop systems, alongside complementary national priorities. The evidence supports a harmonised but locally adaptable monitoring architecture centred on taxonomically reliable identification, repeated field observation, georeferenced reporting, crop phenology and proportionate integrated pest management. Continued data collection under the subsequent project activities will be essential for refining risk interpretation, validating seasonal patterns and converting the baseline into operational early-warning and response mechanisms.