



Izviješće o znanstvenom i stručnom radu na Visokome gospodarskom učilištu u Križevcima za 2021. godinu

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znanost

Veljača, 2022. godine



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1. Uvod

U ovome izviješću iznose se provedene znanstvene i stručne aktivnosti nastavnika i znanstvenika Visokog gospodarskog učilišta tijekom 2021. godine. Izviješće je podijeljeno u pet osnovnih poglavlja koja korespondiraju s provedenim znanstvenim i stručnim aktivnostima a okvir za provođenje znanstvenog i stručnog rada na Visokome gospodarskom učilištu u Križevcima je Strateški program znanstvenih istraživanja za razdoblje od 2019. – 2020. godine¹ u kojem su na osnovi analize provedbe Strategije razvitka Visokoga gospodarskog učilišta u Križevcima za razdoblje 2011. - 2016. u području znanstvenog i stručnog rada, definirani strateški ciljevi i tematska područja znanstvenih istraživanja za razdoblje od 2019. do 2021 godine.

Izviješće je sastavljeno na osnovi izvješća o znanstvenoj i stručnoj aktivnosti nastavnika Visokoga gospodarskog učilišta u Križevcima, koje djelatnici podnose na propisanom obrascu² i na osnovi izvješća o analitičkom radu laboratorija Visokoga gospodarskog učilišta³, kao i izvješća voditelja znanstvenih i stručnih projekata i suradnika na znanstvenim i stručnim projektima koji se provode na VGUK². Nastavnici i znanstvenici Ustanove ažuriraju svoje profile na referentnoj bazi Hrvatska znanstvena bibliografija - CROSBİ, a isti su bili provjereni od strane administratora CROSBİ baze (koji ujedno obnaša i dužnost koordinatora za znanost). U slučaju bilo kakvih nesukladnosti referenci autora ili koautora u CROSBİ bazi sa njihovim navodima u referentnim znanstvenim bazama kao što su; Web of Science/Core Collection, Scopus, CABi, EBSCO i dr., djelatnici su bili zamoljeni da izvrše korekcije ili dopune navoda u CROSBİ bazi, što redovito i čine. Osim bibliografskih podataka, praćeni su i scientometrijski indikatori kvalitete objavljenih radova, koje su uz broj radova glavni pokazatelj kvalitete znanstvenog rada u svakoj ustanovi. Tako je broj citata svakog nastavnika i znanstvenika Učilišta utvrđen korištenjem opcije 'citation reports' na bazi Web of Science/Core Collection, odnosno korištenjem opcije 'citation overview' na bazi Scopus. Scientometrijski pokazatelji časopisa u kojima su djelatnici objavili svoje radove utvrđeni su korištenjem baze Journal Citation Reports na platformi Web of Science.

¹ Strateški program znanstvenih istraživanja Visokoga gospodarskog učilišta u Križevcima za razdoblje 2019. - 2024.

Poveznica: <https://www.vguk.hr/hr/1270/Strate%C5%A1ki+program+znanstvenih+istra%C5%BEivanja+VGUK>

² Oznaka: Prilog 12.1/SOUK/A 4.5.4.1./Izdanje: travanj 2017.

³ Dva nova obrasca koja su nedavno uvedena i još nisu službeno verificirana od strane Jedinice za osiguravanje i unapređivanje kvalitete, stoga zasada nemaju službenu oznaku. To su:

1. Obrazac za analitičku djelatnost laboratorija (popunjavaju voditelji laboratorija)
2. Obrazac za voditelje znanstvenih i stručnih projekata i suradnike na znanstvenim i stručnim projektima koji se provode na VGUK.



2. Projekti

2.1. Rezultati evaluacije projektnih prijava iz 2020. godine

U 2020. godini prijavljena su ukupno četiri prijedloga istraživačkih projekata, a za njih su pristigli rezultati evaluacije u 2021. godini. Dva projekta prijavljena su u okviru sastavnica **OBZOR 2020**, a to su:

1. Projekt: ***Game-changing and real benefits for environment, animals and society by concrete innovations related to pig, poultry and aquaculture food system***. Akronim projekta: greenanimals. Projekt je prijavljen u okviru poziva: H2020-LC-GD-2020-4. Broj projektne prijave: 101037707. Aktivnost: LC-GD-6-1-2020. Visoko gospodarsko učilište bilo je član projektnog konzorcija od 23 ustanova iz europskih zemalja. Projekt je prošao prag jer je ostvario 11 bodova, a prag za prolaznost projekta iznosio je 10 bodova. Međutim, nije donijeta pozitivna odluka o financiranju.⁴
2. Projekt: ***Collaborative Interactive LeArning for SuStainable Development***. Akronim projekta: CLASSED. Projekt je prijavljen u okviru poziva: H2020-LC-GD-2020-3. Broj projektne prijave: 101037098. Aktivnost: LC-GD-10-3-2020. Visoko gospodarsko učilište bilo je član projektnog konzorcija od 13 ustanova iz europskih zemalja. Projekt je prošao prag i iako je na kraju postupka evaluacije ostvario, za mnoge predlagatelje projektnih prijedloga, zavidnih 14,50 od najviše 15 bodova, nije donijeta pozitivna odluka o njegovom financiranju(!).⁵

Osim navedenih dviju projektnih prijava iz sastavnica OBZOR 2020, iz sastavnica Istraživačkih projekata u 2021. prihvaćena su četiri projektna prijedloga:

1. Istraživački projekt po pozivu za prijavu projektnih prijedloga **Hrvatske zaklade za znanost 2020-02** pod naslovom: ***Hrvatske vrste roda Veronica: fitotaksonomija i biološka aktivnost***.⁶ Akronim: CROVeS-PhyBA. Šifra projekta: IP-2020-02-8425. Projekt je u 2021. godini pozitivno je ocjenjen i prihvaćen za financiranje istraživački projekt Voditeljica projekta je prof. dr. sc. Valerija Dunkić sa Botaničkog zavoda Prirodoslovno matematičkog fakulteta Sveučilišta u Splitu. Na projektu je angažirano deset znanstvenika, od čega je

⁴ Usp. Prilog 1

⁵ Usp. Prilog 2

⁶ Poveznica: <https://projects.pmfst.unist.hr/croves-phyba/>



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sedmero znanstvenika sa Prirodoslovno-matematičkog fakulteta Sveučilišta u Splitu, jedan suradnik sa Farmaceutsko-biokemijskog fakulteta Sveučilišta u Zagrebu, jedna suradnica sa Medicinskog fakulteta Sveučilišta u Rijeci, i jedan suradnik sa Visokoga gospodarskog učilišta u Križevcima, dr. sc. Siniša Srećec, znan. savj. u traj. zv. Projekt je započeo 11. siječnja 2021. godine i trajati će do 10. siječnja 2024. godine. Ukupni iznos financiranja projekta je 1.175.000,00 kn, a sredstva su prema propozicijama Hrvatske zaklade za znanost, namijenjena isključivo za materijalne troškove istraživanja i objave radova.

- Istraživački projekt pod naslovom: ***Mogućnosti korištenja digestata iz bioplinskog postrojenja kao gnojiva i poboljšivača tla.***⁷ Projekt je odobren iz sastavnica Mjere 16, Podmjere 16.1. **“Potpora za osnivanje i rad operativnih skupina Europskog partnerstva za inovacije (EIP) za produktivnost i održivost”** – provedba tipa operacije 16.1.2. Operativne skupine.. Projekt je započeo 19. siječnja 2021. godine i trajati će do 30. prosinca 2023. godine. Realizacija projekta financira se sredstvima iz **Europskog poljoprivrednog fonda za ruralni razvoj**. Voditeljica projekta je dr. sc. Ivka Kvaternjak, znan. sur., a ustanova nositeljica je Visoko gospodarsko učilište u Križevcima. Suradnici u realizaciji projekta su šest obiteljskih poljoprivrednih gospodarstava i dvije jedinice lokalne samouprave, općine Sv. Petar Orehovec i Gradec. Ugovorena vrijednost projekta je 1.374.789,88 kn, od čega na Visoko gospodarsko učilište otpada 1.311.141.35 kn. Suradnici na projektu iz Visokoga gospodarskog učilišta uz već navedenu voditeljicu projekta su: dr. sc. Marcela Andreato Koren, znan. sur., dr. sc. Marijana Ivanek Martinčić, dr. sc. Krunoslav Škrlec, Iva Rojnica, mag. ing. agr., Sonja Rajić-Bistrović, mag. primijenjene kemije, Mirjana Mužić, bacc. ing. agr. i Jasna Lepčić, polj. teh.
- Istraživački i razvojni projekt pod naslovom: ***Nacionalni program očuvanja i održive uporabe biljnih genetskih izvora za hranu i poljoprivredu u Republici Hrvatskoj iz Europskog poljoprivrednog fonda za ruralni razvoj*** (Mjera 10.2. Potpora za očuvanje, održivo korištenje i razvoj genetskih izvora u poljoprivredi). 23. rujna 2021. godine između potpisan je Ugovor o financiranju i sudjelovanju u provedbi Nacionalnog programa očuvanja i održive uporabe biljnih genetskih izvora za hranu i poljoprivredu za razdoblje od 2021. do 2027. godine.⁸ Visoko gospodarsko učilište u Križevcima član je istraživačkog konzorcija 11 Hrvatskih ustanova, a svakoj ustanovi suradnici u Nacionalnom programu očuvanja biljnih genetskih izvora dodjeljuje se 590.000,00 kn. S time da je za 2021. godinu iz nacionalnih sredstava Visokome gospodarskom učilištu dodijeljeno 16.000,00 kn.

⁷ Poveznica: <https://www.vguk.hr/hr/1275/DIGIP>

⁸ Poveznica:

<https://www.vguk.hr/hr/1546/U%C4%8Dili%C5%A1te+potpisalo+Ugovor+o+financiranju+i+sudjelovanju+u+provedbi+Nacionalnog+programa+o%C4%8Duvanja+i+odr%C5%BEive+uporabe+biljnih+genetskih+izvora+za+hranu+i+poljoprivredu>



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Voditeljica projekta u Visokome gospodarskom učilištu je dr. sc. Dijana Horvat, a suradnici Krunoslav Hunjak, bacc. ing. agr. i Sara Bošnjak, bacc. ing. agr. Potrebno je napomenuti da Visoko gospodarsko učilište u realizaciji tog programa sudjeluje od početka Nacionalnog programa očuvanja i održive uporabe biljnih genetskih izvora, 2014. godine.

4. Istraživački projekt pod naslovom: **Očuvanje i revitalizacija tradicionalnih voćnih vrsta u Zagrebačkoj i Koprivničko-križevačkoj županiji**.⁹ Koji je predstavljen 22. rujna 2021. Projekt će biti financiran iz proračuna Koprivničko-križevačke i Zagrebačke županije. Voditeljica projekta je prof. dr. sc. Martina Skendrović Babojelić sa Agronomskog fakulteta Sveučilišta u Zagrebu, a suradnik na projektu iz Visokog gospodarskog učilišta je Dragutin Kamenjak, dipl. ing. agr.

2.2. Provedba projekata u 2021. godini

Osim navedena četiri **istraživačkih projekata**, detaljno opisanih u prethodnom poglavlju, čija je provedba započela u 2021. godini, na Visokome gospodarskom učilištu u 2021. godini provode se i sljedeći istraživački projekti:

1. Istraživački projekt pod naslovom: **Procjena konzervacijske obrade tla kao napredne metode uzgoja usjeva i prevencije degradacije tla**.¹⁰ Akronim: ACTIVEsoil. Šifra projekta: IP-2020-02-2647. Projekt financira od **Hrvatske zaklada za znanost**, a ukupni iznos financiranja projekta je 1.279.000,00 kn, a sredstva su prema propozicijama Hrvatske zaklade za znanost, namijenjena isključivo za materijalne troškove istraživanja i objave radova. Voditelj projekta je prof. dr. sc. Danijel Jug sa Agrobiotehničkog fakulteta Sveučilišta Josip Juraj Strossmayer u Osijeku, a Visoko gospodarsko učilište u Križevcima je suradnička ustanova iz koje su na projektu angažirani: dr. sc. Andrija Špoljar, znan. sur., dr. sc. Ivka Kvaternjak, znan. sur. i Iva Rojnica, mag. ing. agr.

⁹ Poveznica:

<https://www.vguk.hr/hr/1540/NA+U%C4%8CILI%C5%A0TU+PREDSTAVLJEN+PROJEKT+O%C4%8CUVANJE+I+REVITALIZACIJA+TRADICIONALNIH+VO%C4%86NIH+VRSTA+U+ZAGREBA%C4%8CKOJ+I+KOPRIVNI%C4%8CKO-KRI%C5%BDEVA%C4%8CKOJ+%C5%BDUPANIJI>

¹⁰ Poveznica: <https://pdb.irb.hr/project/irb:007367>



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Projekt je započeo 22. prosinca 2020. godine i provoditi će se do 21. prosinca 2024. godine. Realizacija projekta odvija se prema radnom i financijskom planu odobrenom od Hrvatske zaklade za znanost.¹¹

- Istraživački projekt pod naslovom: ***Učinak tretiranja sjemena žitarica biostimulatorima, polimerom i kombinacijama preparata***. Ovaj projekt je primjer suradnje sa gospodarstvom, konkretno sa inozemnom i globalnom kompanijom SNF, koja je globalni proizvođač biopolimera.¹² Kompanija SNF godišnje financira realizaciju projekta sa 25.000 kn po pokusu u istraživačkoj/vegetacijskoj godini, s time da broj pokusa u pojedinoj istraživačkoj godini varira između 2 i 3. Broj pokusa definira se ugovorom o suradnji između kompanije SNF i Visokog gospodarskog učilišta za konkretnu istraživačku/vegetacijsku godinu. Projekt je započeo u 2019. godini, a trajati će pet godina, s time da se za svaku istraživačku godinu sklapa ugovor o suradnji za svaku istraživačku godinu. Voditelj projekta na Visokome gospodarskom učilištu je dr. sc. Vesna Samobor, a suradnici na projektu su: dr. sc. Renata Erhatic, znan. sur., Krunoslav Hunjak, bacc. ing. agr. i Iva Rojnica, mag. ing. agr. Projekt se provodi po radnom planu kako je definirano ugovorom s kompanijom SNF.¹³
- Istraživački projekt pod naslovom: ***Prilagodba vinogradarsko-vinarske proizvodnje klimatskim promjenama***.¹⁴ Projekt financira Europska unija kroz Mrežu Europskog partnerstva za inovacije u poljoprivredi (Agricultural European Innovation Partnership, EIP-AGRI) Voditelj projekta je Ivan Prša, dipl. ing. agr. iz **HAPIH-a**, voditelj Centra za vinogradarstvo i vinarstvo. Suradnik iz Visokoga gospodarskog učilišta je Dragutin Kamenjak, dipl. ing. agr. Projekt je započeo 2020. godine, a završava 2024. Ukupna vrijednost projekta je 188.735.55 Eura, a iznos se prema financijskom planu dijeli na suradničke ustanove. Projekt se provodi prema odobrenom radnom planu.

Dakle, na Visokom gospodarskom učilištu u Križevcima ukupno je provedbi **sedam** istraživačkih projekata.

¹¹ Poveznica:

<https://www.vguk.hr/hr/1526/Znanstveni+projekt%3A+Procjena+konzervacijske+obrade+tla+kao+napredne+meto+de+uzgoja+usjeva+i+prevencije+degradacije+tla>

¹² Poveznica: <https://www.snf.com/>

¹³ Poveznica:

<https://www.vguk.hr/hr/1381/U%C4%8Dinak+tretiranja+sjemena+%C5%BEitarica+biostimulatorima%2C+polimero+m+i++kombinacijama+preparata>

¹⁴ Poveznica: <https://ec.europa.eu/eip/agriculture/en/find-connect/projects/prilagodba-vinogradarsko-vinarske-proizvodnje>



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3. Rad laboratorija

3.1. Laboratorij za kontrolu kvalitete poljoprivrednog reprodukcijškog materijala

Tijekom 2021. godine u Laboratoriju za kontrolu kvalitete poljoprivrednog reprodukcijškog materijala Visokog gospodarskog učilišta izvršeno je ukupno **1032 analize sjemena**. Također, djelatnici laboratorija proveli su na terenu kod različitih proizvođača **380 uzorkovanja sjemena**. Od ukupnog broja provedenih analiza, za potrebe **Nacionalnog programa očuvanja i održive uporabe biljnih genetskih izvora** provedene su **52** analize, a za **potrebe izrade završnih radova studenata 28** analiza. Za **potrebe pravnih i fizičkih osoba, naručitelja analiza i uzorkovanja, izvršena su 380 uzorkovanja sjemena i 952 analize**. Ukupno bruto ostvareni prihodi od usluga Laboratorija u 2021 godini iznosi 218 882, 65 kn.

3.2. Agrokemijski laboratorij

Tijekom 2021. godine u Agrokemijskom laboratoriju Visokog gospodarskog učilišta analizirano je ukupno **430 uzoraka tla i 192 uzorka biljnog materijala**. Od ukupno 430 analiziranih uzoraka tla, za potrebe istraživačkih projekata analizirano je **198** uzoraka tla, a **287** uzorka tla analizirano je za potrebe naručitelja tj. pravnih i fizičkih osoba. Za potrebe naručitelja (pravnih i fizičkih osoba) analizirano je i **25** uzoraka organskih gnojiva. Također za potrebe istraživačkih projekata analizirano je i **192** uzorka biljnog materijala. Ukupno ostvareni prihod od usluga u 2021. godini iznosio je 100.450,00 kn.



4. Objavljeni radovi u 2021. godini

4.1. Autorske knjige

U 2021. godini djelatnici Visokog gospodarskog učilišta objavili su ukupno tri knjige u elektroničkom izdanjima po sljedećim kategorijama.

4.1.1. Udžbenici

1. Srećec, S., Erhatic, R. (2021) Poljoprivredna Botanika - Sistematika višeg bilja. Križevci, Visoko gospodarsko učilište u Križevcima. Nakladnik: Visoko gospodarsko učilište u Križevcima. Recenzenti: Dario Kremer i Valerija Dunkić. 151 str. ISBN 978-953-6205-40-0.
https://www.vguk.hr/upload/E_skripte/S_Srecec/Poljoprivredna_botanika_-_sistematika_viseg_bilja.pdf

4.1.2. Priručnici

1. Kalember, Đ. (2021) Načini mrijesta šarana u ribnjačarstvu. Nakladnik: Visoko gospodarsko učilište u Križevcima. Recenzenti: Tomislav Treer i Roman Safner. 52 str. SBN 978-953-6205-44-8.
https://www.vguk.hr/upload/E_skripte/D_Kalember/Praktikum_iz_RIBARSTVA_MRIJEST_SARAN_A.pdf

4.1.3. Skripta

1. Stojnović, M. (2021) Osnove poljoprivrednog strojarstva, praktikum (zbirka riješenih zadataka). Nakladnik: Visoko gospodarsko učilište u Križevcima. Recenzenti: Dubravko Filipović, Vlado Kušec. 50 str. ISBN 978-953-6205-43-1.
https://www.vguk.hr/upload/E_skripte/M_Stojnovic/Stojnovic_prirucnik_za_objavu_09062021.pdf



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4.2. Radovi objavljeni u znanstvenim časopisima

Napomena: Imena autora iz ustanove su podcrtana, a u zagradi nakon doi broja navedeni su scientometrijski pokazatelji časopisa prema Journal Citation Reports referentnoj znanstvenoj bazi.

4.2.1. Radovi objavljeni u časopisima indeksiranim u SCI i ESCI znanstvenim referalnim bazama (Web of Science/Core Collection)

1. Kremer, D., Košir, I., Potočnik, T., Rogulj, N., Načinović, K., Randić, M., Srećec, S., Jurišić Grubešić, R. (2021) Phenolic compounds in two subspecies of *Drypis spinosa* L. (Caryophyllaceae) in Croatia. *Acta Botanica Croatica*, 80 (1), 43-47 doi:10.37427/botcro-2020-015. (Q4, IF _{5. godišnji} = 1.24)
2. Bolarić, S., Dragojević Müller, I., Vokurka, A., Vitali Čepo, D., Ruščić, M., Srećec, S., Kremer, D. (2021) Morphological and molecular characterization of Croatian carob tree (*Ceratonia siliqua* L.) germplasm. *Turkish Journal of Agriculture and Forestry*, 45 (6), 807-818 doi:10.3906/tar-2107-24. (Q2, IF _{5. godišnji} = 1.974)
3. Grdiša, M., Šatović, Z., Liber, Z., Jakše, J., Varga, F., Erhatic, R., Srećec, S. (2021) High Genetic Diversity and Low Population Differentiation in Wild Hop (*Humulus lupulus* L.) from Croatia. *Applied Sciences-Basel*, 21 (14), 1-14. doi:10.3390/app11146484. (Q2, IF _{5. godišnji} = 2.736)
4. Gajdić, D., Mesić, Ž., Petljak, K. (2021) Preliminary Research about Producers' Perceptions of Relationship Quality with Retailers in the Supply Chain of Organic Food Products in Croatia. *Sustainability*, 13 (24), 1-41 doi:10.3390/su132413673. (Q2, IF _{5. godišnji} = 3.473)
5. Kremer, D., Zovko Končić, M., Kosalec, I., Košir, I., Potočnik, T., Čerenak, A., Srećec, S., Dunkić, V., Vuko, E. (2021) Phytochemical Traits and Biological Activity of *Eryngium amethystinum* and *E. alpinum* (Apiaceae). *Horticulturae*, 7 (10), 364, 15. doi:10.3390/horticulturae7100364. (Q1, IF _{5. godišnji} = 2.951)

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4.2.2. Radovi objavljeni u časopisima indeksiranim u ostalim znanstvenim referalnim bazama (samo SCOPUS, CABI, EBSCO i dr.)

1. Kantar, S. (2021) Motivation of young people studying agriculture. *Lucrări Științifice Management Agricol, Timisoara, Romania*, 23 (2), 119-124.
2. Kantar, S., Svržnjak, K., Jerčinović, S. (2021) Društveno korisno učenje u području ruralnog turizma na Visokom Gospodarskom Učilištu u Križevcima. *Agroeconomia Croatica*, 11 (1), 104-114.

4.2.3. Radovi objavljeni u zbornicima skupova *in extenso*

1. Gajdić, D., Marenčić, D., Pavičić, G. (2021) Utjecaj čimbenika kvalitete na percepciju potrošača prilikom odluke o kupnji u kratkim lancima opskrbe hranom. Rozman, V. i Antunović, Z. (ur.) 56. Hrvatski i 16. Međunarodni simpozij agronoma - zbornik radova. Osijek, Fakultet agrobiotehničkih znanosti Osijek Sveučilišta Josipa Jurja Strossmayera u Osijeku, str. 182-187.
2. Meštrović, M., Vrbančić Igrić, M., Jelen, T., Alagić, D., Bogatirov, L. (2021) Pokazatelji kvalitete jaja križevačke kukmaste kokoši. Rozman, V. i Antunović, Z. (ur.) 56. hrvatski i 16. međunarodni simpozij agronoma. Osijek, VIN Grafika, str. 640-644.
3. Škrlec, K., Višak, R. (2021) Uspješnost provedbe projekata energetske učinkovitosti obiteljski kuća kontinentalne Hrvatske u razdoblju 2015.-2020. Drljača, M. (ur.) 22. međunarodni simpozij o kvaliteti: Kvaliteta - jučer, danas, sutra: zbornik radova = 22nd International Symposium on Quality: Quality - Yesterday, Today, Tomorrow: Proceedings. Poreč, Hrvatsko društvo menadžera kvalitete, str. 259-272.

4.2.4. Sažeci sa skupova objavljeni u zbornicima i časopisima

1. Mihalic, I., Čuklić, D., Svržnjak, S., Jelen, T., Čuklić, M. (2021) Trendovi u govedarskoj proizvodnji u Zagrebačkoj županiji od 2009. do 2019. godine.. Rozman, V. i Antunović, Z. (ur.) 56. Hrvatski i 16. Međunarodni Simpozij Agronoma. Osijek, Fakultet agrobiotehničkih znanosti Osijek, str. 259-260.



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2. Rojnica, I., Horvat, D., Haramija, J., Križ, M. (2021) Utjecaj temperature na klijavost sjemena zrnatih mahunarki. Dugalić, I. i Haramija, J. (ur.) 14. međunarodni kongres Oplemenjivanje bilja, sjemenarstvo i rasadničarstvo i 8. regionalni dani sjemenara. Zagreb, str. 76-77.
3. Bošnjak, S., Horvat, D., Haramija, J., Srećec, S. (2021) Utjecaj predtretmana i biostimulatora na klijavost sjemena blitve i cikle. Dugalić, I. i Haramija, J. (ur.) 14. međunarodni kongres Oplemenjivanje bilja, sjemenarstvo i rasadničarstvo i 8. regionalni dani sjemenara. Zagreb, str. 78-79.
4. Špoljar, A., Kvaternjak, I., Žibrin, D., Mužić, M., Stojnović, M. (2021) Utjecaj uzgoja kukuruza (*Zea mays* L.), soje (*Glycine max* L.) i zobi (*Avena sativa* L.) u plodoredu na sadržaj mobilnog aluminija, reakciju i električnu provodljivost tla. Jug, D. (ur.) Book of Abstracts "Conservatoin Soil Tillage". Osijek, ISTRO - International Soil Tillage Research Organization, str. 16-16.

4.3. Kvaliteta znanstvenih radova nastavnika i znanstvenika Visokog gospodarskog učilišta

Kvaliteta znanstvenih radova nastavnika i znanstvenika Visokog gospodarskog učilišta mjerena je scientometrijskim pokazateljima, kao opće prihvaćenim indikatorima kvalitete znanstvenog rada kao što su:

- a) Broj objavljenih radova u časopisima indeksiranim na referalnim znanstvenim bazama podataka Web of Science/Core Collection i SCOPUS.
- b) Citiranošću objavljenih radova u časopisima indeksiranim na referalnim znanstvenim bazama podataka Web of Science/Core Collection i SCOPUS, uključujući i vrijednost H-indeksa.

Scientometrijski pokazatelj, tj. indikatori kvalitete znanstvenog rada djelatnika Visokoga gospodarskog učilišta prikazani su u tablicama 1 i 2.



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Tablica 1. Kvaliteta znanstvenog rada na VGU mjerena ukupnim brojem objavljenih radova i brojem citata objavljenih radova u međunarodnim znanstvenim časopisima, indeksiranih u WoS i SCOPUS referalnim bazama do 31. 12. 2021. godine

Ime i prezime	Ukupni broj referenci u SCOPUS bazi	Uk. broj citata u bazi SCOPUS	Pros. cit./rad u bazi SCOPUS	Uk. Obj. radovi bazi WoS/Core Collect.	Uk. broj citata u bazi WoS/Core Collect.	Pros. cit./rad u bazi WoS/Core Collect.
Siniša Srećec	50	404	8,08	40	268	6,7
Ivka Kvaternjak	11	65	5,9	5	38	7,8
Andrija Špoljar	10	38	3,8	3	19	6,33
Renata Erhatic	9	88	9,77	6	63	10,5
Dejan Marenčić	7	19	2,71	5	25	3
Kristina Svržnjak	6	17	1,63	8	19	2,38
Sandra Kantar	5	11	2,2	3	11	3,67
Marijana Ivanek Martinčić	4	2	2	4	3	0,75
Tatjana Tušek	4	7	1,75	2	3	1,5
Marcela Andreata Koren	3	4	1,33	5	6	1,2
Silvije Jerčinović	2	0	-	3	0	-
Duškanka Gajdić	1	0	-	3	6	2
Damir Alagić	1	3	1	-	-	-
Krunoslav Škrlec	1	2	2	-	-	-
Tatjana Jelen	1	3	1	1	3	3



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Tablica 2. Kvaliteta objavljenih radova mjerena h-indeksom citiranosti autora u WoS i SCOPUS bazama podataka – usporedba: 2021. vs. 2020.

Ime i prezime	H-indeks SCOPUS 2020.	H-indeks SCOPUS 2021.	Razlika (2021-2020)	H-indeks WoS/Core Coll. 2020.	H-indeks WoS/Core Coll. 2021.	Razlika (2021-2020)
Siniša Srećec	10	11	1	8	9	1
Ivka Kvaternjak	5	5	-	4	4	-
Andrija Špoljar	3	3	-	2	2	-
Renata Erhatic	4	4	-	3	3	-
Dejan Marenčić	2	3	1	2	3	1
Kristina Svržnjak	3	3	-	3	3	-
Sandra Kantar	2	2	-	1	1	-
Marijana Ivanek Martinčić	1	1	-	1	1	-
Tatjana Tušek	2	2	-	1	1	-
Marcela Andreata Koren	1	1	-	2	2	-
Silvije Jerčinović	0	0	-	0	0	-
Dušanka Gajdić	0	0	-	1	1	-
Damir Alagić	1	1	-	-	-	-
Krunoslav Škrlec	1	1	-	-	-	-
Tatjana Jelen	1	1	-	1	1	-



5. Analiza istraživačkog rada na Visokom gospodarskom učilištu u Križevcima tijekom 2021. godine po strateškim ciljevima Strateškog programa znanstvenih istraživanja 2019. – 2024.

Iz drugog poglavlja ovog Izviješća, posve je razvidno da sve istraživačke aktivnosti provedene tijekom 2021. godine korespondiraju s definiranim tematskim područjima Strateškog programa znanstvenih istraživanja 2019. – 2024.¹⁵ To su:

- Primijenjena i razvojna istraživanja mjera za ublažavanje i prilagodbu klimatskim promjenama radi unaprjeđenja poljoprivredne proizvodnje, uzgoja, kvalitete i plodnosti tla ili jačanja otpornosti poljoprivrednih sustava na promjene uz napredno korištenje novih tehnologija ili alternativnih sustava proizvodnje
- Istraživanje prirodnih biljnih vrsta kao potencijala za korištenje u poljoprivredi ili farmaciji
- Pametna rješenja u poljoprivredno-prehrambenom sektoru
- Očuvanje bioraznolikosti
- Očuvanje, održivo korištenje i razvoj genetskih izvora u poljoprivredi
- Utjecaj agrotehničkih mjera na kvantitativna i kvalitativna svojstva poljoprivrednih kultura
- Obnovljivi izvori energije u poljoprivredi
- Održivi razvoj ruralnog prostora
- Održivi lanci opskrbe poljoprivredno-prehrambenih proizvoda

Povezanost provedenih aktivnosti sa strateškim ciljevima, prikazana je u tablici 3.

¹⁵ Poveznica:

<https://www.vguk.hr/multimedia/4c61803366287cb6a7173d0c9a2fcf98a575887f84cfd5e0d2c521cc16ac3c05d6a73f3b1613860397.pdf>

Tablica 3. Povezanost provedenih aktivnosti u istraživačkom radu u 2021. sa strateškim ciljevima Strateškog programa znanstvenih istraživanja

Poseban cilj 1. Angažman djelatnika Učilišta u postupcima prijave i realizaciji znanstvenih i stručnih projekata			
Aktivnost	Indikator	Status	Opisano u pogl. izviješća
Prijavljivati projektne prijedloge na natječaje u Hrvatskoj i EU	2 projektne prijave na natječaje programa OBZOR 2020 1 na natječaj HRZZ 2 na natječaj Ministarstva poljoprivrede 1 na natječaje jedinica lokalne samouprave – Županija	Provedeno u 2020/21.	2.1. i Prilog 1 i 2
Realizacija prihvaćenih i financiranih projekata	Ukupno 7 projekata u realizaciji	Provedba 3 projekta krenula 2020. a 4 2021. godine	2.2.
Ocjenjivati uspješnost projekata	Poglavlje 4 izviješća	Provodi se kontinuirano	4.1., 4.2., 4.3.,
Poseban cilj 1.2. Angažman studenata u realizaciji znanstvenih i stručnih projekata			
Uključivati studente u provođenje projekata	Studenti su izravno uključeni u realizaciju svih 7 projekata kroz realizaciju terenskih vježbi, stručne prakse, i izrade završnih i diplomskih radova. Štoviše, bez angažmana studenata projekti jednostavno ne bi mogli biti realizirani. Time se ostvaruje koncept ' <i>learning by doing</i> '	Provodi se i provoditi će se kontinuirano do završetka projekata	U izviješću se to eksplicitno ne navodi, već se navodi u dnevnicima stručne prakse, u završnim i diplomskim radovima studenata.
Poseban cilj 1.3. Suradnja s poljoprivrednim gospodarstvima i ostalim gospodarskim subjektima na rješavanju konkretnih projektnih zadataka (i/ili usluga) i implementacija rezultata u dobru proizvođačku praksu			
Povećati usluge Agrokemijskog laboratorija i Laboratorija za analizu kvalitete	Detaljno opisano u poglavlju 3. Rad laboratorija	Provodi se kontinuirano	3.1., 3.2.



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poljoprivrednog reprodukcijuskog materijala			
Poseban cilj 1.3. Suradnja s poljoprivrednim gospodarstvima i ostalim gospodarskim subjektima na rješavanju konkretnih projektnih zadataka (i/ili usluga) i implementacija rezultata u dobru proizvođačku praksu			
Aktivnost	Indikator	Status	Opisano u pogl. izviješća
Provoditi ekspertize za potrebe poljoprivrednih gospodarstava i ostalih gospodarskih subjekata	Projekti: <ul style="list-style-type: none"> - Procjena konzervacijske obrade tla kao napredne metode uzgoja usjeva i prevencije degradacije tla - Učinak tretiranja sjemena žitarica biostimulatorima, polimerom i kombinacijama preparata - Mogućnosti korištenja digestata iz bioplinskog postrojenja kao gnojiva i poboljšivača tla - Prilagodba vinogradarsko-vinarske proizvodnje klimatskim promjenama 	U provedbi	2.1. 2.2.
Partnerstvo s poljoprivrednim gospodarstvima i ostalim gospodarskim subjektima u provedbi stručnih i znanstvenih projekata	Projekt: Mogućnosti korištenja digestata iz bioplinskog postrojenja kao gnojiva i poboljšivača tla	U provedbi	2.1.
Poseban cilj 1.4. Suradnja s lokalnim zajednicama na provođenju stručnih i razvojnih projekata			
Aktivnost	Indikator	Status	Opisano u pogl. izviješća
Partnerstvo s lokalnim zajednicama (lokalnom samoupravom, udrugama i dr.)	Projekti: <ul style="list-style-type: none"> - Mogućnosti korištenja digestata iz bioplinskog postrojenja kao gnojiva i poboljšivača tla 	U provedbi	2.1.



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u prijavi i provođenju stručnih i razvojnih projekata	- Očuvanje i revitalizacija tradicionalnih voćnih vrsta u Zagrebačkoj i Koprivničko-križevačkoj županiji		
Aktivnost	Indikator	Status	Opisano u pogl. izviješća
Izrada studija i ekspertiza za potrebe lokalnih zajednica	Isti projekti navedenim pod prethodnom aktivnosti	U provedbi	2.1.

Prilog 1

EUROPEAN COMMISSION

Horizon 2020 - Research and Innovation Framework Programme

Evaluation

Summary Report - Innovation actions

Call: H2020-LC-GD-2020-4

Type of action: IA

Proposal number: 101037707

Proposal acronym: greenanimals

Duration (months): 48

Proposal title: Game-changing and real benefits for environment, animals and society by concrete innovations related to pig,

poultry and aquaculture food systems

Activity: LC-GD-6-1-2020

1 RTD SERVICES OG AT 551,250 4.99% 385,875 3.75%
2 ARISTOTELIO PANEPISTIMIO THESSALONIKIS EL 746,250 6.75% 746,250 7.25%
3 STIFTUNG TIERAERZTLICHE HOCHSCHULE HANNOVER DE 645,000 5.84% 645,000 6.27%
4 UNIWERSYTET TECHNOLOGICZNO PRZYRODNICZY IM
JANA I JEDRZEJA SNIADOCKICH W BYDGOSZCZY PL 601,250 5.44% 601,250 5.84%
5 LEIBNIZ-INSTITUT FUR NUTZTIERBIOLOGIE DE 454,875 4.12% 454,875 4.42%
6 UNIVERSITA DEGLI STUDI DI UDINE IT 246,250 2.23% 246,250 2.39%
7 UNIVERSITA DEGLI STUDI DI MILANO IT 659,920 5.97% 659,920 6.41%
8 ISTITUTO SPERIMENTALE ITALIANO "LAZZARO
SPALLANZANI" IT 631,250 5.71% 631,250 6.14%
9 Visoko gospodarsko uciliste u Krizevcima HR 164,375 1.49% 164,375 1.60%
10 INSTYTUT BIOCHEMII I BIOFIZYKI POLSKIEJ AKADEMII
NAUK PL 736,250 6.66% 736,250 7.16%
11 INSTITUT POLYTECHNIQUE UNILASALLE FR 555,000 5.02% 555,000 5.40%
12 FREIE UNIVERSITAET BERLIN DE 500,000 4.52% 500,000 4.86%
13 UNIVERSIDAD DE BURGOS ES 863,750 7.81% 863,750 8.40%
14 AALBORG UNIVERSITET DK 522,947.5 4.73% 522,947.5 5.08%
15 VYZKUMNY USTAV VETERINARNIHO LEKARSTVI CZ 395,625 3.58% 395,625 3.85%
16 UNIVERSITA DEGLI STUDI DEL MOLISE IT 220,756.25 2.00% 220,756.25 2.15%
17 NARODNE POL'NOHOSPODARSKE A POTRAVINARSKE
CENTRUM SK 229,375 2.08% 229,375 2.23%
18 SUMO TECHNOLOGIES GMBH AT 287,500 2.60% 201,250 1.96%
19 PATENT co. DOO RS 255,000 2.31% 178,500 1.74%
20 BIOATLANTIS IE 457,562.5 4.14% 320,293.75 3.11%
21 Fermentationexperts AS DK 999,687.5 9.04% 699,781.25 6.80%
22 ASSOCIAZIONE PISCICOLTORI ITALIANI IT 134,500 1.22% 134,500 1.31%
23 FUNDACION CORPORACION TECNOLOGICA DE
ANDALUCIA ES 194,125 1.76% 194,125 1.89%
Total: 11,052,498.7
5 10,287,198.7
5

Abstract:

greenanimals will apply a food systems approach in pigs, poultry and aquaculture where food production is connected to a variety of fields including agriculture, environment, energy, health, education, infrastructure and planning. The greenanimals food systems are multi-functional, multi-factor and multi-actor based. The greenanimals consortium has recognized that traditional models focused purely on food production or linear models such as food supply or value chains but is not appropriate to represent such a complex system. greenanimals will develop, implement and transfer concrete innovations into practice based on a holistic farm-to-fork approach with the aim on the reduction of anti-microbial



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usage in the greenanimals food systems. The main key exploitable results will include efficient, rational and financially acceptable antibiotic-free production schemes based on a welfare, health, quality and environmental-friendly farm system. The greenanimals approach will apply its concrete innovations in operational food systems based on monogastric species (pig, poultry) and aquaculture (fish). greenanimals applies a holistic or systems approach meaning the inclusion of both horizontal dimensions (such as environment, health, infrastructure, training and education) and vertical dimensions (being all different stages of the food value chain). greenanimals will apply a user-driven but also community-driven approach in real-life contexts. This includes knowledge sharing, collaboration and experimentation in real environments. User-driven innovation is a high priority for greenanimals and especially real-life testing and experimentation where users and producers co-create innovation and benefit. greenanimals integrates 23 project partners, a rather big consortium, in order to ensure all needed disciplines and parts of the food systems represented, and 29 associated partners being farms, technology suppliers, certification, advisor companies within the greenanimals network.

Evaluation Summary Report

Total score: 11.00 (Threshold: 10)

SCORING

Scores must be in the range 0-5.

101037707/greenanimals-19/05/2021-09:47:26 1 / 3

Associated with document Ref. Ares(2021)3320838 - 19/05/2021

Interpretation of the score:

0? The proposal fails to address the criterion or cannot be assessed due to missing or incomplete information.

1? Poor. The criterion is inadequately addressed, or there are serious inherent weaknesses.

2? Fair. The proposal broadly addresses the criterion, but there are significant weaknesses.

3? Good. The proposal addresses the criterion well, but a number of shortcomings are present.

4? Very good. The proposal addresses the criterion very well, but a small number of shortcomings are present.

5? Excellent. The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

Score: **3.50** (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the topic description in the

work programme:

Clarity and pertinence of the objectives

Soundness of the concept, and credibility of the proposed methodology

Extent that proposed work is beyond the state of the art, and demonstrates innovation potential (e.g. ground-breaking objectives,

novel concepts and approaches, new products, services or business and organisational models)

Appropriate consideration of interdisciplinary approaches and, where relevant, use of stakeholder knowledge and gender

dimension in research and innovation content

The objectives and the context of the proposal are pertinent and well described presenting a promising mix of products and services with the

ultimate but indirect goal of reducing the use of antimicrobials. The objectives are measurable. However, some aspects of the proposal are not

clearly defined, for example 'best farming practices' and the 'modes of action'.

The overall concept of the proposal is sound and covers the aspects required in the call. However, the proposal does not adequately describe

how all the proposed solutions will be combined, in order to be efficiently tested, nor how conclusions and actions will be taken from the

factors analysed. For example, bench-marking with a cross-section of regular farming systems is not clearly envisaged.

Moreover, the

proposal does not adequately explain how data on some parameters will be collected.

The multi-actor approach is adequately addressed. However, the role of critical farmers and their participation in the proposed work is not

convincingly described.

The proposed work is beyond the state of the art with innovation lying in the adoption of a holistic approach to reducing antimicrobial usage by



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changing behaviour of relevant actors and identifying alternatives to antimicrobials. As examples, the focus on farm hygiene management, use of seaweed extracts and the drinking water pipe cleaning concepts are novel approaches. However, the proposal does not adequately describe how the many different innovative approaches can be integrated to address the AMR challenges. The proposal addresses the interdisciplinary approaches well. The proposal includes very good cooperation between network partners and engagement with multi-stakeholder groups.

Score: **4.00** (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account:

The extent to which the outputs of the project would contribute to each of the expected impacts mentioned in the work

programme under the relevant topic

Any substantial impacts not mentioned in the work programme, that would enhance innovation capacity, create new market

opportunities, strengthen competitiveness and growth of companies, address issues related to climate change or the

environment, or bring other important benefits for society

Quality of the proposed measures to:

- exploit and disseminate the project results (including management of IPR), and to manage research data where relevant

- communicate the project activities to different target audiences

The outputs of the project address the expected impacts very well. For example it will contribute to decreasing the dependency on

antimicrobials in animal production and aquaculture in farms while increasing awareness among policymakers, businesses, investors,

entrepreneurs, institutions, stakeholders and citizens. However, regarding the AM solutions, it remains unclear how such a large number of

alternatives will be adapted to reduce AM usage in each species or farm situation, and the challenges of economical and behavioural barriers

are not sufficiently considered.

The proposal will result in a mitigation of AMR infections in farm workers through reduced exposure to resistant bacteria and includes a series

of impacts related to the UN Sustainable Development Goals.

Dissemination and exploitation of the results are well defined within the proposal. Comprehensive tables illustrate various exploitable aspects,

however, some of the targets are not sufficiently justified, e.g. how would "increases animal health and welfare by 10%" be measured?

IPR management is well covered and an extensive and clear plan of action is described to protect results.

There is a clear strategy regarding the management of research data and knowledge.

A high quality and ambitious communication strategy targets several relevant stakeholders, events and media.

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Score: **3.50** (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account:

Quality and effectiveness of the work plan, including extent to which the resources assigned to work packages are in line with

their objectives and deliverables

Appropriateness of the management structures and procedures, including risk and innovation management

Complementarity of the participants and extent to which the consortium as a whole brings together the necessary expertise

Appropriateness of the allocation of tasks, ensuring that all participants have a valid role and adequate resources in the project

to fulfil that role

The work plan is appropriate to reach the project's objectives. However, a plan to cooperate with European Commission services is not

adequately presented. The Work Packages (WPs) are well described indicating the effectiveness of the work plan. However, there are some

shortcomings. For example, how the generated data will be managed in order to support execution is not sufficiently described in WP1.

Appropriate management structures and procedures are provided, comprising different bodies and responsibilities. Critical risks are analyzed



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and managed. However, some of the risks are described in general terms and the mitigation measures are insufficient and not clearly elaborated into tangible actions. It is not clear whether the risk management plan mentioned in WP 7 will consider a comprehensive range of risks, including sufficient mitigation against relevant aspects like a failure to obtain regulatory approval. The complementarity of the participants is well described and brings the necessary expertise to achieve the proposed goals. Allocation of tasks and resources to participants is generally appropriate. However, the roles for some partners are insufficiently defined. For example, the role of participant 5 (FBN) is described as "Beneficiary of WP2, WP3, WP5 and WP6" which falls short of describing what they would do in these WPs.

Status: Yes

Comments (in case the proposal is out of scope)

Not provided

Status: Operational Capacity: Yes

If No, please list the concerned partner(s), the reasons for the rejection, and the requested amount.

Not provided

A third country participant/international organisation not listed in [General Annex A to the Main Work Programme](#) may exceptionally receive funding if their participation is essential for carrying out the project (for instance due to outstanding expertise, access to unique know-how, access to research infrastructure, access to particular geographical environments, possibility to involve key partners in emerging markets, access to data, etc.). (For more information, see the [Online Manual](#))

Based on the information provided in the proposal, we consider that the following participant(s)/international organisation(s) that

requested funding should exceptionally be funded:

(Please list the Name and acronym of the applicant, Reasons for exceptional funding and the Requested grant amount.)

Not provided

Based on the information provided in the proposal, we consider that the following participant(s)/international organisation(s) that

requested funding should NOT be funded:

(Please list the Name and acronym of the applicant, Reasons for exceptional funding and the Requested grant amount.)

Not provided

Status: No

If yes, please state whether the use of hESC is, or is not, in your opinion, necessary to achieve the scientific objectives of the proposal and the reasons why. Alternatively, please state if it cannot be assessed whether the use of hESC is necessary or not because of a lack of information.

Not provided

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Associated with document Ref. Ares(2021)3320838 - 19/05/2021

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Prilog 2

EUROPEAN COMMISSION

Horizon 2020 - Research and Innovation Framework Programme

Evaluation

Summary Report - Innovation actions

Call: H2020-LC-GD-2020-3

Type of action: IA

Proposal number: 101037098

Proposal acronym: CLASSED

Duration (months): 36

Proposal title: Collaborative Interactive LeArning for SuStainable Development

Activity: LC-GD-10-3-2020

1 RISE RESEARCH INSTITUTES OF SWEDEN AB SE 610,500 16.88% 610,500 18.08%
2 GEONARDO ENVIRONMENTAL TECHNOLOGIES LTD HU 389,750 10.78% 272,825 8.08%
3 HOGSKOLEN I INNLANDET NO 507,562.5 14.04% 507,562.5 15.03%
4 ETHNIKO KAI KAPODISTRIAKO PANEPISTIMIO ATHINON EL 207,562.5 5.74% 207,562.5 6.15%
5 CONSERVATION EDUCATION AND RESEARCH TRUST UK 293,500 8.12% 293,500 8.69%
6 ASSOCIACAO PORTUGUESA EDUCACAO AMBIENTAL PT 110,250 3.05% 110,250 3.26%
7 GREENOVATE ! EUROPE BE 247,125 6.83% 247,125 7.32%
8 EUSEA - EUROPAISCHE GESELLSCHAFT FUR
WISSENSCHAFTSVERANSTALTUNGEN AT 417,250 11.54% 417,250 12.35%
9 IMRO-DDKK KORNYEZETVEDELMI NONPROFIT KFT HU 104,750 2.90% 104,750 3.10%
10 ASOCIATIA WWF ROMANIA RO 196,000 5.42% 196,000 5.80%
11 Visoko gospodarsko uciliste u Križevcima HR 124,875 3.45% 124,875 3.70%
12 ECHT regie in transitie B.V. NL 284,092.5 7.86% 198,864.75 5.89%
13 TechForce Innovations BV NL 123,015 3.40% 86,110.5 2.55%
Total: 3,616,232.5 3,377,175.25

Abstract:

The overall objective of CLASSED is to develop a competence framework relevant to achieving the set goal of engaging citizens in the green transformation of society. The framework will be multidisciplinary, gender sensitive, applicable for different citizen groups and adaptable to different educational systems and local conditions. CLASSED will deliver the framework through collaborative learning methods providing contextual and student-owned environmental learning experiences that lead to better assimilation of the acquired knowledge and more active use of it. CLASSED competence framework will be broadly tested and disseminated through 6 demonstration sites, an Online Knowledge Hub and through fostering the establishment of Local Green Partnerships. The framework will focus on lifelong learning competencies needed to address sustainability challenges across diverse settings. To provide feedback on the developed framework and give citizens the opportunity to monitor their behavioral change towards a more sustainable lifestyle, CLASSED will develop a self-assessment tool that will be made publicly available. Through the collaborative approach CLASSED will create learning programs and training materials to link the classroom learning process to the real-world application. These materials will serve as guidelines for the implementation of the competence framework and collaborative teaching methods to support learner-centered and action-oriented teaching. CLASSED will support the establishment of Local Green Partnerships to provide a platform for multi-stakeholder networking and facilitate the integration of environmental sustainability perspectives into educational practices and decision-making processes. To enable digital engagement of students in sustainability initiatives and support exchange of experiences and best-practices, an Online Learning Hub will be established. CLASSED training materials and the self-assessment tool will be disseminated through the Hub.



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Evaluation Summary Report

Total score: 14.50 (Threshold: 10)

SCORING

Scores must be in the range 0-5.

Interpretation of the score:

0 The proposal fails to address the criterion or cannot be assessed due to missing or incomplete information.

1 Poor. The criterion is inadequately addressed, or there are serious inherent weaknesses.

2 Fair. The proposal broadly addresses the criterion, but there are significant weaknesses.

3 Good. The proposal addresses the criterion well, but a number of shortcomings are present.

4 Very good. The proposal addresses the criterion very well, but a small number of shortcomings are present.

5 Excellent. The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

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Score: **4.50** (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the topic description in the work programme:

Clarity and pertinence of the objectives

Soundness of the concept, and credibility of the proposed methodology

Extent that proposed work is beyond the state of the art, and demonstrates innovation potential (e.g. ground-breaking objectives,

novel concepts and approaches, new products, services or business and organisational models)

Appropriate consideration of interdisciplinary approaches and, where relevant, use of stakeholder knowledge and gender

dimension in research and innovation content

The overall objectives are excellent, specific, realistic and fully aligned with the scope of the topic in the call. The framework encourages

convincingly interdisciplinary and cross-curricular lifelong learning approaches, and will be applicable to different citizens, age groups and

educational systems. CLASSED is rooted in the EU Council Recommendation on Key Competences for life-long learning and this is fully

consistent with the Call requisites. It will build on appropriate existing frameworks, starting with a review of all the relevant information on

previous frameworks and identified sustainability competences.

Specifically to the climate change thematic, CLASSED acknowledges the various challenges, which hinder citizens from embarking on the

behavioral changes needed in their lives. Additionally, the proposal addresses very well the challenges through a three-tiered approach,

revolving around the local approach, empowerment and tangible mitigation measures, which each citizen can adopt, and this is a strength.

The methodology proposed is pertinent and credible to deliver on all aspects of the objectives, fully aligned with the call topic. The concept is

very sound and will allow to realistically deliver on the objectives. CLASSED will convincingly support the establishment of new Local Green

Partnerships involving a large scope of stakeholder groups. This is a strength.

The demonstration activities have a good balance of geographical representation, and six different regions of Europe are selected as

demonstration sites (being held in Hungary, Portugal, The Netherlands, Romania, Croatia and UK). It is positive that some of the selected

countries are at the forefront of education performance (PISA-2018). The sites will address three age groups (upper primary school;

secondary school and university level). However, only secondary schools are present in all demonstration sites. This is a minor shortcoming.

The schools/universities involved in each country are well identified, with potential for additional involvement already identified. The proposal is

highly convincing with respect to some of the demonstration sites, especially in terms of rationale, target groups, numbers of students at

different ages and educational activities. The demonstration activities will cover water and waste management and biodiversity loss, all using a



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common methodology. However, the proposal is lacking detail on field activities for some demonstration sites. This is a shortcoming. CLASSED will considerably advance the state of the art. It will develop a competence framework, starting with a review of all the relevant information on previous frameworks and identified sustainability competences. In addition, it will be advancing education and training in sustainable development and adopt a collaborative learning approach. The project demonstrates considerable innovation potential given that its methodology aspires to address possible/natural resistance to individual behavioural changes and collective changes in social practices. The project excellently identifies several barriers for behavioural changes related to climate change and sustainability. The project will address these barriers with innovative approaches. It will bring the problem to the local context, making it recognizable and understandable for young citizens. The proposal very well demonstrates thoughtful consideration of the gender dimension of education by giving importance to the complex socio-cultural issues surrounding such a dimension in different geographical regions and considering gender differences in learning through all project activities.

Score: **5.00** (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account:

The extent to which the outputs of the project would contribute to each of the expected impacts mentioned in the work

programme under the relevant topic

Any substantial impacts not mentioned in the work programme, that would enhance innovation capacity, create new market

opportunities, strengthen competitiveness and growth of companies, address issues related to climate change or the

environment, or bring other important benefits for society

Quality of the proposed measures to:

- exploit and disseminate the project results (including management of IPR), and to manage research data where relevant

- communicate the project activities to different target audiences

The project outcomes will contribute in an excellent way to all the expected impacts of the call. The proposed multi-disciplinary European competence framework will be developed, tested and evaluated and has a potential to be a reference tool for all end-users involved in life-long learning on environmental matters, ranging from Member States to NGOs. Concretely, the framework will have a broad involvement of schools and universities (more than 200), including all the target groups (business representatives and entrepreneurs, researchers from academia, civil society and representatives of municipalities and other local authorities).

The proposal clearly demonstrates an ability to assess effectively the knowledge, skills and attitude of European citizens, especially young

people, and to contribute through initiatives on the school curricula, training and networking activity fronts. It does this by including an impact

assessment and evaluation tool which already follows a tried and tested methodology. A specific task has been formulated for the assessment

of the education activities conducted at the demonstration sites. This is very positive.

The project will create educational collaborative learning programmes and develop training materials for the educators to support learnercentred,

action-oriented and transformative learning and teaching approaches in environmental education. This is excellent.

Key barriers and challenges, such as: "reluctance of stakeholders to engage and provide guidance, the students/schools not showing interest

in the proposed framework and implementation of the framework in national school curricula" are very well identified and addressed in a

convincing way to maximize the impact of the project. The identified barriers and challenges are being reduced as the project is taking

advantage of the already established networks of some partners with schools in their cities.

It is a strength that the proposal lists additional impacts to the ones focused in the call, namely: Contribution towards the Sustainable



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Development Goals, Improved interest of students in environmental education, Networking and sharing of ideas, Acquisition of transferable

skills for lifelong learning, and Contribution to achieving the Europe 2025 education target.

In terms of spearheading the broad participation of students and pupils within inter-generational dialogues and exchanges, the proposal fulfils

fully expectations laid down in the Call since an estimated 2000 students, representing different age groups, ranging from upper primary

school to lower and upper secondary school as well as to University stages, will be engaged within the six identified demonstration sites,

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along with the corresponding educators. In addition, some of the demonstration sites (Hungary, Croatia and The Netherlands) will involve

vocational training centers. This is positive.

The stakeholder engagement measures within the proposal are comprehensive, since the project will strongly interact with stakeholders,

creating "Local Green Partnerships" with local stakeholders to learn and provide feedback about the framework, learning methodologies and

educational materials. The proposal clearly targets young citizens and involves key policy-makers in the demonstration site countries,

including municipalities, ministries and business. The proposal also aims to target society at large, besides the teaching profession, students

and NGOs, and this is also a positive aspect. The use of collaborative learning methodology will significantly facilitate group learning on the

environmental challenges. This is excellent.

The proposal makes a difference in the broad testing, dissemination and use of the competences framework given that the six selected

demonstration sites cover a diverse array of sustainability issues, including waste and water management, biodiversity loss, hazards linked to

climate change, etc. The educational communities are clearly identified. CLASSED competence framework will be disseminated through formal

and informal on- and offline channels, such as the Online Knowledge Hub, publications, cooperation with other projects and initiatives on

sustainable education.

CLASSED has a very clear and detailed exploitation and dissemination plan in support of the expected impacts, with a dedicated WP on

dissemination, targeting youth, students, scientific community, educational institutions, relevant NGOs and the general public, with identified

KPIs. It excellently describes its route for exploitation of result with each key exploitable being followed by a result manager who will be in

charge of monitoring and updating the exploitation plan.

Communication activities are clearly described and consist of a communication kit that will include a variety of materials that partners can use

to promote the project, in formation on the project website, mini-communication kits in local language, as well as communication via blogs,

newsletters and social media. KPIs are identified for each communication channel.

The legacy beyond the life of the project has been very well considered. CLASSED commits to maintain the digital knowledge hub for at least

three years following the termination of project activities.

The management of IPR is described adequately.

Score: 5.00 (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account:

Quality and effectiveness of the work plan, including extent to which the resources assigned to work packages are in line with

their objectives and deliverables

Appropriateness of the management structures and procedures, including risk and innovation management

Complementarity of the participants and extent to which the consortium as a whole brings together the necessary expertise

Appropriateness of the allocation of tasks, ensuring that all participants have a valid role and adequate resources in the project

to fulfil that role

The work plan is very effective and the work packages are clearly defined, each of them contributing in a logic and useful way to the



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objectives of the project. Resources are adequately distributed across the WPs. The timing of the work packages is clearly specified. The work plan, as detailed through the relevant Gantt and Pert diagrams, is plausible, both in terms of timeline and in terms of different work package linkages. All deliverables are well presented. The structure of the project management is clear and effective. All bodies have a clear role and composition. The proposal identifies very well the critical risks, from low to medium likelihood to happen and low to medium impact on the project outcomes. The proposed risk-mitigation measures are very appropriate. Clustering with other projects is very well planned, it has allocated a dedicated task. The project will establish Cooperation and Clustering Network that will include representatives and coordinators of the identified projects, to ensure direct and continuous communication. This is a strength. The consortium is highly complementary, including research institutions, universities, NGOs and SMEs. They do bring all the necessary expertise in line with their tasks, covering environmental sciences, psychology, behavioural sciences, STEM education, pedagogy, citizen science and development studies. The budget allocation per partner is considered adequate and coherent with the tasks allocated to the same partners. For instance, each partner leading a specific Workpackage has been allocated the highest number of person months within the same Workpackage and this rationale is positive. The 'other costs' requested by each partner are well justified within the proposal.

Status: **Yes**

Comments (in case the proposal is out of scope)

Not provided

Status: **Operational Capacity: Yes**

If No, please list the concerned partner(s), the reasons for the rejection, and the requested amount.

Not provided

A third country participant/international organisation not listed in [General Annex A to the Main Work Programme](#) may exceptionally receive funding if their participation is essential for carrying out the project (for instance due to outstanding expertise, access to unique know-how, access to research infrastructure, access to particular geographical environments, possibility to involve key partners in emerging markets, access to data, etc.). (For more information, see the [Online Manual](#))

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Not provided

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Based on the information provided in the proposal, we consider that the following participant(s)/international organisation(s) that requested funding should NOT be funded:

(Please list the Name and acronym of the applicant, Reasons for exceptional funding and the Requested grant amount.)

Not provided

Status: **No**

If yes, please state whether the use of hESC is, or is not, in your opinion, necessary to achieve the scientific objectives of the proposal and the reasons why. Alternatively, please state if it cannot be assessed whether the use of hESC is necessary or not because of a lack of information.

Not provided

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