

After LIFE Plan

LIFE ViVaCCAdapt project

LIFE15 CCA/SI/000070



REPUBLIKA SLOVENIJA
MINISTRSTVO ZA OKOLJE IN PROSTOR

After LIFE Plan

LIFE ViVaCCAdapt project

LIFE15 CCA/SI/000070

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After-LIFE Plan projekta LIFE ViVaCCAdapt (LIFE15 CCA/SI/000070)

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Index

1. List of abbreviations	6
2. Introduction	9
Project data	10
Project description	11
Background	12
Project objectives	13
Project results	14
3. After-LIFE Plan	17
a. Web-site updating programme	17
b. Newsletter releasing programme	19
c. Facebook page updating programme	21
d. Management programme for CCAS	23
e. Management programme for DSSI	25
f. Management programme for GWB	27

1. List of abbreviations

DSSI: Decision Support System for Irrigation

GWB: Green Windbreak

CCAS: Climate Change Adaptation Strategy for agriculture in the Vipava Valley for the period 2017–2021

CC: Climate Change

WB: Windbreaks

SECAP: Sustainable Energy and Climate Action Plan

ARSO: Slovenian Environment Agency

KGZS: Chamber of Agriculture and Forestry of Slovenia

2. Introduction

Here, we present the After-LIFE Plan of the LIFE ViVaCCAdapt project. With this document, we want to ensure that the measures we have designed and established within the project will develop in the coming years, replicate and thus enable agriculture to prosper and upgrade, not only in Western Slovenia but also elsewhere.

Vipava Valley was chosen as the implementation area, as it has highly favourable natural resources for the development of intensive agriculture, but it is threatened by droughts, floods, frosts, and strong winds, which are becoming more frequent due to the impact of climate change. Therefore, from the viewpoint of implementation, agriculture is the most exposed sector.

The LIFE ViVaCCAdapt project arose from the environment and peoples' needs. In preparing the project proposal, the focus was mainly on the questions: "What can we do to make it easier for farmers to fight for the production of quality crops?", "What can we do to ensure that the number of young people who decide to farm is not constantly decreasing?", "What can we do for the environment?". However, the most important question was: "What solution to all these problems would also be suitable for transfer to other environments?".

The above questions were answered in the LIFE ViVaCCAdapt project, and the project results show that the intervention was radical in several areas.

The measures of GWBs, DSSI and the CCAS are the tools for agricultural land users that will certainly improve their adaptation to climate change.

Project data

Project title: Adapting to the impacts of Climate Change in the Vipava Valley

Project acronym: LIFE ViVaCCAdapt

Implementation: Slovenia, Goriška Region

Project duration: 5 years (01/07/2016–30/06/2021)

Beneficiaries:

- Regijska razvojna agencija ROD Ajdovščina (Regional Development Agency ROD Ajdovščina – Coordinating, beneficiary)
- BO - MO svetovalno podjetje, d.o.o. (BO – MO, LTD - Associated beneficiary),
- HIDROTEHNIK Vodnogospodarsko podjetje, d.o.o. (Associated beneficiary),
- Inštitut za vode Republike Slovenije (Institute for Water of the Republic of Slovenia – Associated beneficiary),
- Občina Ajdovščina (The Municipality of Ajdovščina – Associated beneficiary),
- Univerza v Ljubljani (The University of Ljubljana, Biotechnical Faculty – Associated beneficiary).

Project description

The LIFE ViVaCCAdapt project focuses on three CC adaptation measures: the DSSI and GWBs, which are intended for direct field application; and the CCAS, which provides a regulatory framework related to short-term orientations in agriculture.

The purpose of the CCAS is to strengthen the local capacity of the agricultural sector to adapt to climate change, manage risks, such as droughts, floods, frosts and strong winds, and take advantage of the opportunities in agriculture brought by climate change. The CCAS provides climate resilience assessment of local agriculture, a set of priority measures and recommendations for their implementation, and for each measure, defines key stakeholders and their role in implementation.

The DSSI comprises both hardware and software and offers irrigation advice to farmers, after which users irrigate their crops. Before using the DSSI, farmers irrigated based on their experience and assumptions, as they had no information on the water content in the soil. However, by using the DSSI they have significantly improved the overview of the plant water requirements. By using the DSSI regularly, farmers irrigate more efficiently – optimising water and energy use, reducing CO₂ emissions and contributing to better yields. Within the project, we equipped 35 farms with the DSSI.

GWBs are a revival of a once more widespread measure, which means planting borders (smaller bands of greenery – trees and undergrowth) between individual plots to prevent wind erosion and reduce water evaporation from freshly ploughed agricultural land. As part of the project, a 300 m long and 5 m wide GWB was planted.

Background

Vipava Valley has highly favourable environmental conditions (climate, soil) for the development of intensive agriculture. Nevertheless, increasing droughts, floods and strong winds limit the rapid development of agriculture in the area. With the CC an increased intensity of these weather phenomena is expected. Planned and already implemented CC adaptation measures have not yielded the expected positive results. CC is unlikely to be avoided. It is therefore necessary to find good and timely adjustments to existing climate variability and extreme weather events as well as mitigation of CC. Agriculture is one of the most weather and climate vulnerable sectors of the economy. Effective adaptation can be achieved only by developing appropriate adaptation strategies tailored to suit Vipava Valley and with some adjustments to other areas as well. With the rapid adaptation, economic benefits will be achieved, since the proposed measures attempt to minimize the risk of damage as a result of current or future adverse impacts of CC and to take advantage of potential positive impacts.

Project objectives:

- Analysis of the current situation in the Vipava Valley with regard to adaptation to CC.
- Definition of strategic actions to adapt to CC. Draw up a set of measures in collaboration between different sectors (agriculture, forestry, hydrology, transport, tourism, urban planning, etc.) with expert assessment to analyse possible environmental problems triggered by proposed agricultural measures.
- Reconciliation of defined objectives and strategic actions. Determination of the main (primary) and the other (secondary) measures and propose their sequence of implementation.
- Establishment of a pilot DSSI to rationalize water consumption following the requirement of the Water Framework Directive and by default with contents in connection with the former in the Rural Development Programme of Slovenia.
- Evaluation of existing GWB efficiency (simulations). Design the demonstration centre to plant GWB to spread information about them and their importance.
- Comprehensive strategy for CC adaptation taking into account the specifics of the area discussed. The proposed strategy for adapting to CC pursues the objectives of the National Environmental Action Programme and the European Environmental Policy, which advocate sustainable development.

Project results:

- Characterization of farming typology, land use, and cropping systems in Vipava Valley.
- Defined:
 - CC scenarios for Vipava Valley,
 - best agronomic practices to better cope against CC in Vipava Valley and
 - CC governance models.
- Comprehensive CCAS for Vipava Valley.
- DSSI for the area of Vipava Valley for all kinds of crops (i.e. grape, fruits, vegetable) on soils with different water retention characteristics. The pilot DSS will be prepared for later use on the national level.
- Demonstration centre (area) with 300 m of different GWB.
- Comparison between areas with and without GWB provided the answer that formation of wind protection zones in areas with strong and gusty winds is not only sensible, but also essential.
- Increased public awareness on the CC adaptation as the best way to protect natural sources and biodiversity without decreasing quantity and quality of products as well as fertility of farming areas.
- New synergies developed and thematic networks with various LIFE projects and other European projects.
- Skilled and motivated people involved who motivated project participants and provided them with the most updated pieces of information and the most recent technologies.

3

After-LIFE Plan

3. After-LIFE Plan

a. Web-site updating programme

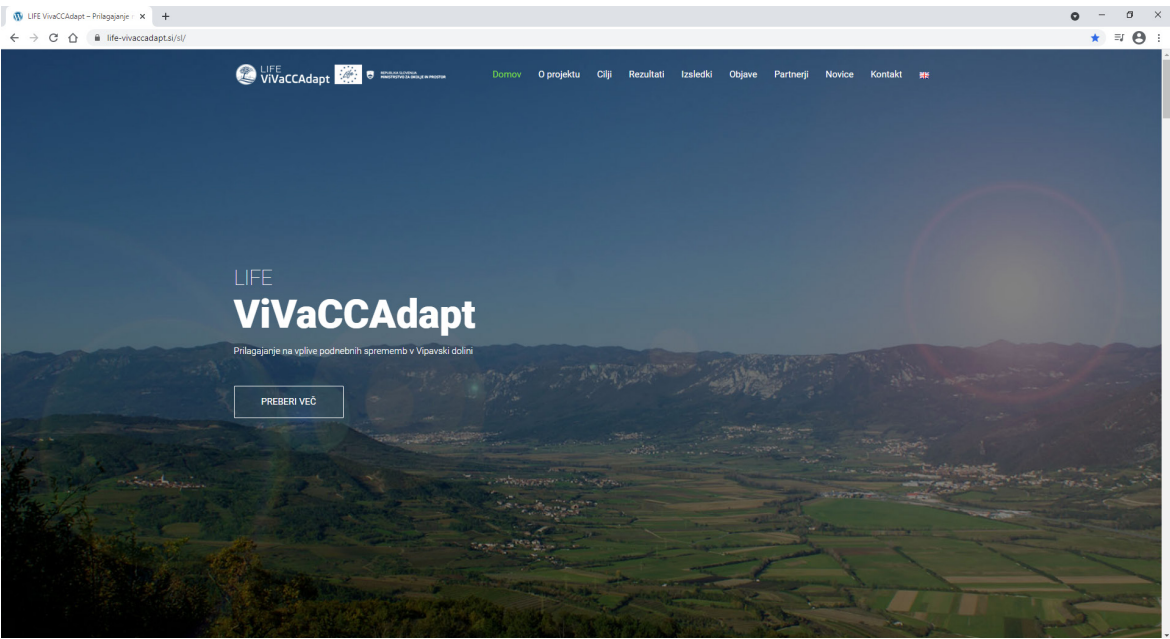
The project website (<https://life-vivaccadapt.si/en/> or <https://life-vivaccadapt.si/sl/>) was set up in 2016. Since its inception, it has exceeded 30,000 views. The website is designed in a way that stakeholders and the interested public can find all relevant information from the beginning of the project through its implementation to its completion. Thus, details, such as project description, objectives and results, are published on the website, followed by all project outputs – documents that we developed and prepared in partnership during the project. The website also contains articles, contributions and other publications that we have prepared about the project ourselves or that have been prepared about our project by the media. The diversity of the website is provided by a photo gallery of the establishment of a GWB pilot field from geodetic measurement to planting of trees. Current project news is also available at the bottom of the website page, which is presented in Slovene and English.

The Regional Development Agency ROD as the coordinating beneficiary will ensure the operation of the website for a further five years after the completion of the project. The content of the website will be filled with articles on the dissemination of results and events related to the dissemination of the DSSI, the planting of GWB in the Vipava Valley and in other areas, and the dissemination of CCAS. We will also publish articles on the adaptation of agriculture to CC.

Website updating programme

Updating	News concerning the project and about dissemination and adoption of the systems by other organisations
Responsible	RRA ROD
Updating	5 years after completion of the project
Costs	300 € / year
Human resources	RRA ROD staff
Feed	RRA ROD and project partners

Picture 1
Project web site, established within the
project LIFE ViVaCCAdapt LIFE15 CCA/
SI/000070



Regular informing of stakeholders, target groups and interested public is essential. The project web site, which presents a basic dissemination tool in the LIFE programme, is presented in two languages. It contains the most important information and results.

b. Newsletter releasing Programme

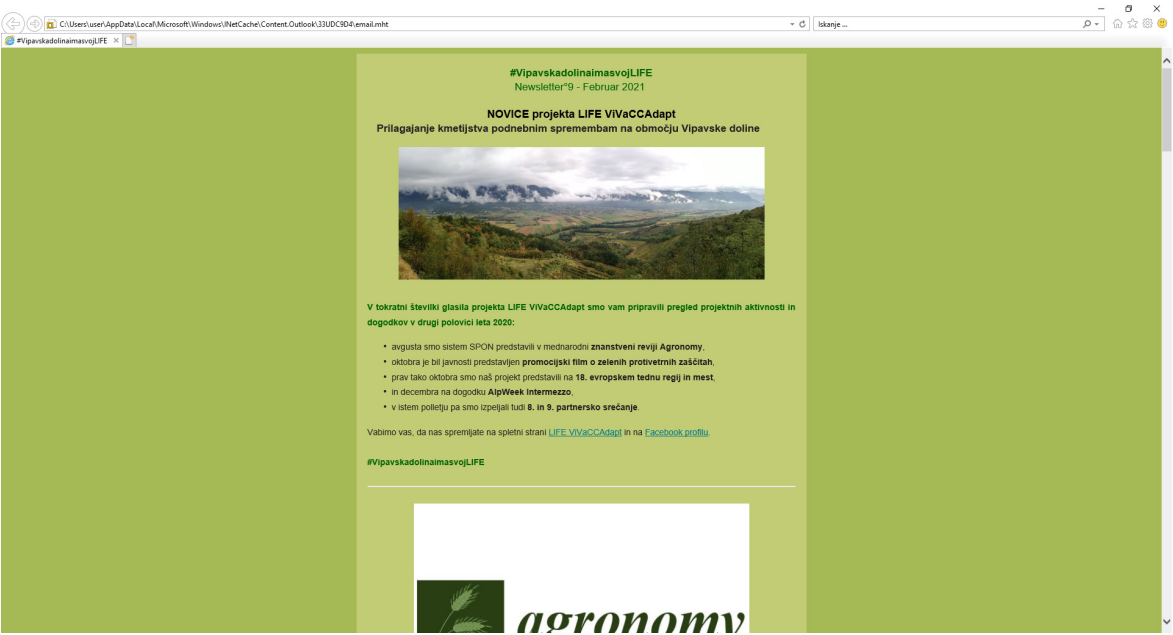
As part of the project, we published two issues of the electronic Newsletter entitled #VipavskadolinaimasvojLIFE annually, which amounts to a total of 10 newsletters. In the newsletter, we filled the content with news that we prepared based on the content that was implemented in our project. We described all the relevant events: partnership meetings, project monitor visits, networking events of our project with others and additional activities carried out within the project (publication of a scientific article in Agronomy magazine, preparation of a film on GWB protection, etc.).

In the next five years, we will prepare one newsletter per year as part of post-project activities, in the third quarter of each year. A total amount of five newsletters will be issued. The publication will not be printed, but designed and issued only in electronic form to reduce environmental burden. The publication will be shared on the website and Facebook page, and it will be also sent to the addresses of the registered newsletter recipients. The newsletter will cover news from the field of adaptation to CC and the success of the dissemination of measures developed by the project.

Newsletter releasing Programme

Updating	News from the field of adaptation to climate change and success of the dissemination of measures
Responsible	RRA ROD
Updating	5 years after completion of the project
Costs	150 € / issue
Human resources	RRA ROD staff
Feed	RRA ROD and Project partners

Picture 2
Project newsletter issued within the
project LIFE ViVaCCAdapt LIFE15
CCA/SI/000070



During the project, we published 10 issues of project newsletter, titled with an original name: #VipavskadolinaimasvojLIFE (Vipava Valley has its LIFE). The title is ambiguous, because it presents the place of the project LIFE – the Vipava Valley as well as points out that we wish to keep life in the Vipava Valley with our project measures.

c. Facebook page updating programme

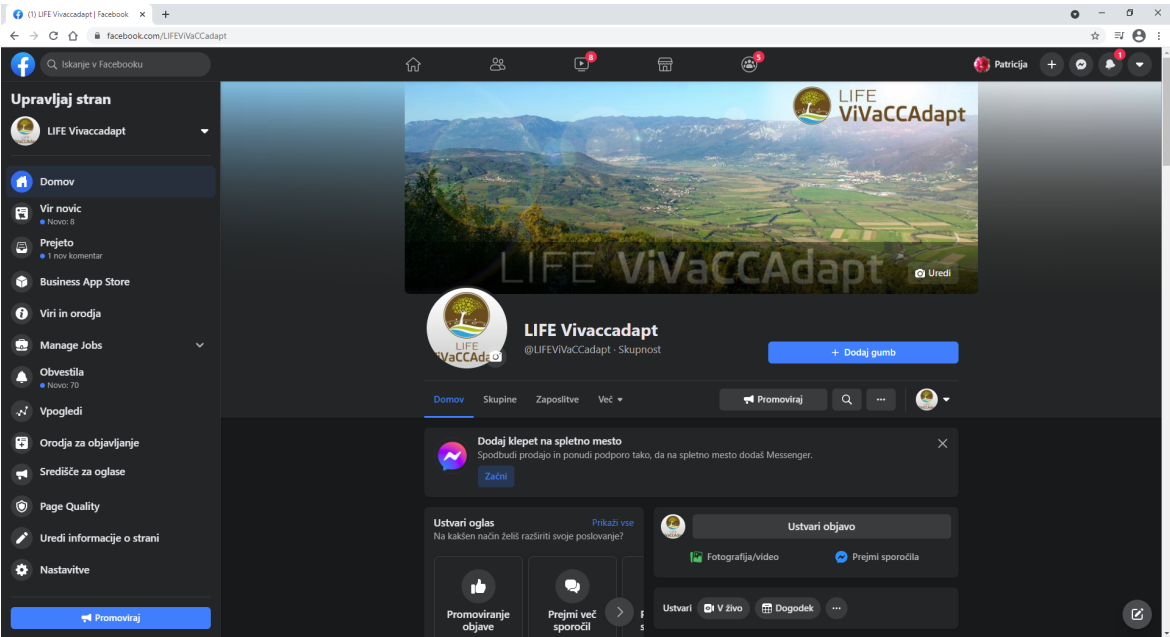
We fill the project Facebook page with news about what is happening in our project and we also disseminate news from other related projects, especially projects that are co-financed from the LIFE programme with similar content. So far, we have adapted the form and number of posts/shares mainly to project activities and to a lesser extent to developments in the field of adaptation to climate change.

Over the next five years, we will post at least two posts/shares per month on the project’s Facebook page, and we will further expand our network of followers and the projects we follow. In the posts/shares, we will focus on events in the field of adaptation to CC and related and at the same time, we will follow the development of measures that we have developed within our project.

Facebook updating Programme

Updating	News from the field of adaptation to climate change and success of the dissemination of measures
Responsible	RRA ROD
Updating	5 years after completion of the projec
Costs	200 € / year
Human resources	RRA ROD staff
Feed	RRA ROD and Project partners

Picture 3
Facebook page established within the project LIFE ViVaCCAdapt LIFE15 CCA/ SI/000070



Project’s Facebook page was designed for up-to-date posting of news and activities we perform, at the same time, we used this web tool for networking with other similar projects.

The purpose of the CCAS is to strengthen local capability of the agricultural sector to adapt to CC, to manage risks connected with weather conditions, such as droughts, floods, frosts and strong wind, and to take advantage of opportunities in agriculture brought by the CC. This Strategy acquired expert starting-points, a set of preferential measures and recommendations for implementation of measures for adapting local agriculture to CC.

Presentation of the CCAS took place simultaneously with preparation of another document, which partly represented a foundation for the preparation of the CCAS: the analysis of situation. This analysis, titled Regional analysis to support adaptation of agriculture to climate change in the Vipava Valley (Regionalna analiza za podporo prilagajanja kmetijstva in podnebne spremembe v Vipavski dolini), was made in March 2017. For this document, we performed a comprehensive overview of the region from the positions of agriculture and food production. In analysis, we described the Vipava Valley from the viewpoint of climate, hydrogeology, nature and agriculture on one side. On the other, we searched for the causes and reasons for the vulnerability and adaptability of agriculture and analysed its potential influences. According to the last three factors, we prepared an assessment of agriculture conditions in the Vipava Valley. The analysis also included a list of defined measures for adaptation to CC, analysed and processed in detail in the CCAS.

An important result was also a list of examples of good practices in adaptation to CC that are already carried out in the Vipava Valley. These good practices were also the foundation for the CCAS. After the conclusion of the Analysis and gaining the input data, valid for the Vipava Valley (its vulnerability, adaptability and potential influences on the area as well as a list of good practices), we began preparing the CCAS.

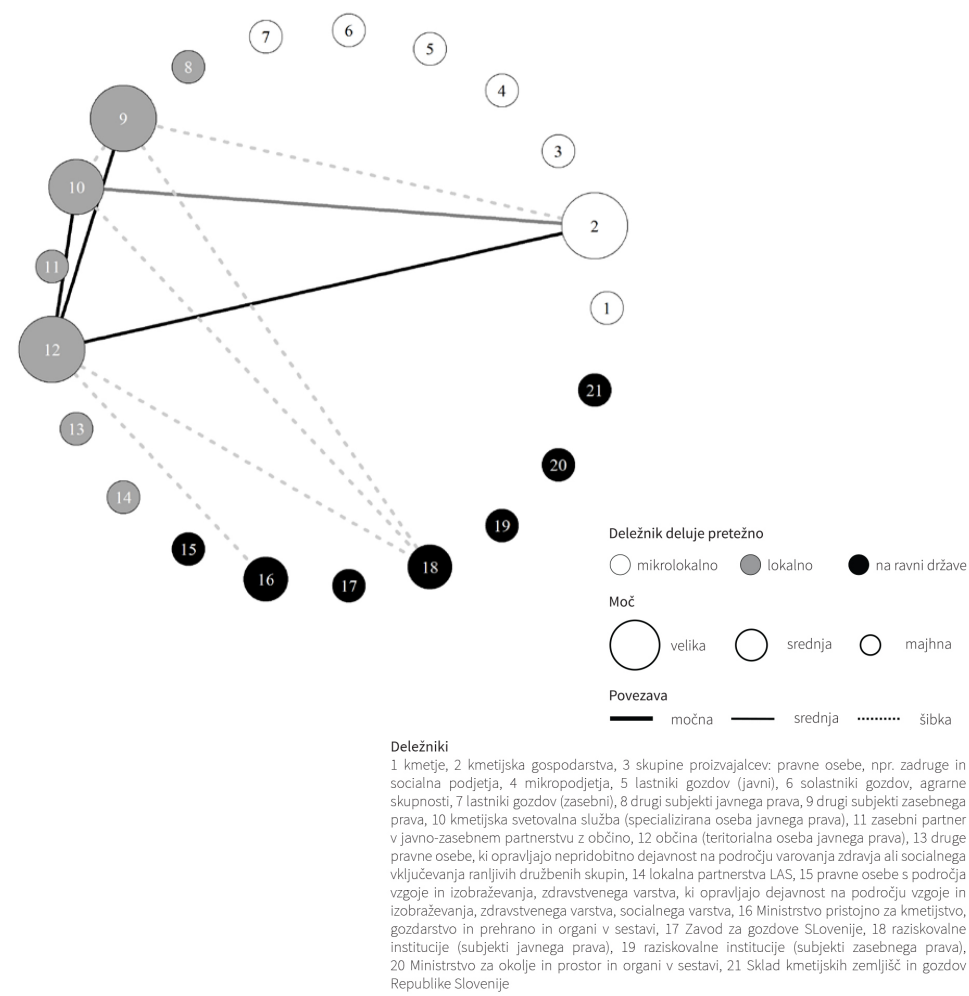
Therefore, we formed the CCAS for the Vipava Valley. We presented the Strategy at the 86th meeting of the Council of Severna Primorska Region on 16th March 2017 to all the municipalities in the Goriška Statistical Region. At this point, the mayors accepted informational decision.

The formed CCAS continues to develop in the framework of action plan for sustainable energy and CC (SECAP) for other Slovene municipalities. Different sectors of individual municipalities are collaborating in the SECAP project. The CCAS Strategy, formed in the LIFE ViVaCCAdapt project, is used for implementation of agriculture practice adaptations. We expect that similar strategies, as CCAS in the Municipality of Ajdovščina, are also implemented in other municipalities in Slovenia.

Dissemination action for CCAS

Updating	Dissemination of information and knowledge about the strategy of adapting to CC
Responsible	UL, OA, IzVRS
Updating	5 years after completion of the project
Costs	1500 € / year
Human resources	UL staff
Feed	UL and Project partners

Picture 4
Climate Change Adaptation Strategy for Agriculture in the Vipava Valley for the period of 2017–2021 prepared within the project LIFE Vi-VaCCAdapt LIFE15 CCA/SI/000070



The CCAS discusses measures for adaptation to CC in agriculture from the viewpoint of shareholder involvement and connection among them.

e. Management programme for DSSI

After-LIFE Plan

We have established DSSI, including monitoring stations for measuring water content in the soil for 35 farms, which was maintained and upgraded during the project. We performed regular counselling to producers about a method of data monitoring and correct irrigation and offered them help in registering and monitoring data of individual plant phenophases. We also performed regular service and corrected defects/damage on monitoring stations as well as replaced spent batteries.

A detailed plan of maintaining the DSSI is still in the forming phase within the project EIP-AGRI PRO-Pridelava (production). By the end of 2021, DSSI will be established at ARSO and will be in operation from 2022. It is planned that ARSO takes over and maintains DSSI; however, the counselling should be performed by the Agricultural Advisory Service at the KGZS (KGZS). The University of Ljubljana will be available for counselling to all interested cooperating members in the project. We will carry out presentations of the system and the promotion of the established DSSI at expert meetings. In case of greater interest, we will also organise workshops on the topic of DSSI in collaboration with KGZS.

Management programme for DSSI

Updating	Counselling and maintaining DSSI System
Responsible	UL, BO - MO
Updating	5 years after completion of the project
Costs	3500 € / year
Human resources	UL, ARSO, KGZS, BO - MO staff
Feed	UL, BO - MO and Project partners

Picture 5
Installation of water level meters in terrain within the project LIFE Vi-VaCCAdapt LIFE15 CCA/SI/000070 (Author: Luka Žvokelj)



“CC bring new challenges in the field of food production and plant cultivation. Ensuring water, water sources and irrigation systems is, however, a key condition for quality and successful agricultural production in the future.”

Branimir RADIKON, B. Econ., engr. (Agri), manager of Institute of Agriculture and Forestry Nova Gorica

f. Management Programme for GWB

The Municipality of Ajdovščina planted a pilot demonstration GWB, 300 m long and 5 m wide. The total area of this 1500 m² windbreak is divided into six surfaces; each contains 50 m area, composed of different combination of trees and undergrowth. The planting was made according to results of previously performed analysis of wind conditions, analysis of WB influence and workshop with stakeholders.

In collaboration with project partners, the Municipality will keep the GWB within regular maintenance works. According to the expert report of planting, designed by Slovenian Forest Service, a purpose-made dense planting of tree saplings was performed, since a certain amount of reduction to the planting is expected until its full functionality is established. In this manner, self-sustainability and longer duration of planting will be provided after conclusion of this project. Anemometers and water level meters in the soil, which we acquired within the project, will continue to monitor the efficiency of the planted WB. For this purpose, we performed a general service of the complete monitoring system before the conclusion of the project.

The established infrastructure of GWB presents an important potential to knowledge and experiences, which will be taken into account in preparation of future new project proposals. For the project of Planting new GWB in the Vipava Valley, planned from 2022 onward, we obtained a support from the Ministry of Agriculture, Forestry and Food of the Republic of Slovenia. This assumes to put into effect the measure M04.4 – non-productive investments within the 10th change to the Rural Development Programme 2014–2020, which also include planting of WB. As a local community, the Municipality will continue to address the landowners and other investors, interested in planting GWBs, also after the conclusion of this project.

Knowledge and experiences connected to the established infrastructure of demonstration GWB will be disseminated onward. General public and different target groups will be informed via various communication channels. The Municipality of Ajdovščina has its public relations service, which will carry out further dissemination of acquired knowledge and present the information to the general public. The planting results will be presented in an evident manner to facilitate repeatability and portability of GWB infrastructure. A large emphasis is intended for promotion of positive effects the GWB have on the farming produce and eco-system function of GWB in the environment.

Management programme for GWB

Updating	Monitoring and maintaining planted WB
Responsible	OA
Updating	5 years after completion of the project
Costs	800 € / year
Human resources	OA staff
Feed	OA and Project partners

Picture 6
Pilot demonstration windbreak established within project LIFE ViVaCCAdapt
LIFE15 CCA/SI/000070
(Author: Jože Papež)



“Black poplar by the highway near Vipava stands out among trees in the Vipava Valley. This is most probably the largest poplar in Slovenia, which has stood against the Bora wind for nearly a century. From the environmental protection point of view, trees in the Ajdovščina field stand out, as they enable nesting of lesser grey shrike (Lanius minor). Slovenia has only a few nesting pairs of this bird species left.”

dr. Jana Laganis, ZRSVN OE Nova Gorica

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fakulteta



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