Demonstrations

Commercialization of an Automated Monitoring and Control System against the Olive and Med Fruit Flies of the Mediterranean Region

FruitFlyNet-ii: STR_B_A.2.1_0043
MEDITERRANEAN SEA BASIN PROGRAMME 2014-2020

Project Coordinator
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Project Consortium

BEN: Agricultural University of Athens (AUA), Athens, Greece

PP1: University of Córdoba (UCO), Córdoba, Spain

PP2: University of Molise (UNIMOL), Molise, Italy

PP3: Lebanese Agricultural Research Institute (MPC), Zahle, Lebanon

PP4: Institut de l'Olivier–Tunisian Olive Institute (IO), Sfax, Tunisia

PP5: Regional Research Centre on Horticulture and Organic Agriculture (CRRHAB), Sousse, Tunisia

Team Members	
BEN (AUA)	Theodore Tsiligiridis, ionysios Perdikis Costas Pontikakos Eirini Christopoulou
PP01 (UCO)	Meelad Yousef Flora Moreno Alcaide Emilio Manuel Calvo Cerezo, Rafael de la Cueva Revuelta María Elizabeth Bermeo Yupanqui
PP02 (UNIMOL)	Andrea Sciarretta Armando, Amore Marco Tania Travaglini Maria Grazia Calamo Nicola Mario De Lisio
PP03 (LARI)	Ahmad ELBITAR Linda Kfoury Samer El Romeh Ghazi Arafat
P04 (IO)	Ines Ksentini Manel Ben Ameur Marwa BOURI Mabrouka Ghabbari Slim Messedi
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1. **DEMO-1:** *FruitFlyNet-ii* participates in Agri Innovation Expo

20 - 30th of September 2021, Agricultural University of Athens

Organizing Partner: BEN (AUA)
Event Name: *FruitFlyNet-ii* participation in the Agri Innovation Expo.
Event Date: 20-30 September 2021
Speakers: Prof. Theodore Tsiligiridis
Physical location: Agricultural University of Athens, Greece.
URL-1: Οι ομάδες νέο – Agri Innovation Expo (aua.gr) (stand 24)
URL-2: FruitFlyNet-ii participates in Agri Innovation Expo | ENI CBC Med
Brochure: *AgriInnovBrochure_AUA.pdf*
Brief Description:
The project was among 30 research projects participated in the Agri Innovation Expo that took place on 20 – 30 of September 2021 in Athens. The event visited by more than 700 persons, was organized by the Agricultural University of Athens at the premises of the Agricultural Museum aiming to promote innovation and technology inclusion for the benefit of society and of general interest. *FruitFlyNet-ii* kiosk attracted the interest of various persons mainly farmers and agricultural cooperatives' members including a member of the cabinet, entrepreneurs, and numerous university students.

Photos: *Overview of the FruitFlyNet-ii stand in the Agri innovation Expo*

2. **DEMO -2:** *FruitFlyNet-ii* introduces its novelties to local farmers.

28th of June 2022, Argolis, Greece

Organising Partner: BEN (AUA)
Event Name: *FruitFlyNet-ii* introduces its novelties to local farmers.
Event Date: June 28th, 2022
Speakers: Prof. Theodore Tsiligiridis, Assoc. Professor Dionysios Perdikis
Physical location: Arkadiko, Argolis, Greece.
URL:
Brief Description*:*
On 28th June 2022, the research team of the Agricultural University of Athens, the lead beneficiary of the *FruitFlyNet-ii* project, organized a meeting with the owners of the olive groves, where *OliveFlyNet* system is implemented, located in the village of Arkadiko, Argolis region, north east of Peloponnese in Greece.
The project coordinator, Prof. Theodore Tsiligiridis, made a general introduction to the aims of the project and the contributing role of the farmers to its success, following by a demonstration of the *OliveFlyNet* e-trap, components, and functioning, as well, a short presentation of *OliveFlyNet* e-services.
Consequently, the technical manager of the project, Prof. Dionysios Perdikis, presented the solutions the project can offer to the farmers for a more effective and environmentally friendly control of the olive fruit fly through precise and timely olive fly monitoring, spraying decisions and spraying applications.

Photos: *Overview of the meeting with the local farmers*

Presentations: Oral presentations provided by:
Prof. Theodore Tsiligiridis, and Technical Manager Assoc. Professor Dionysios Perdikis

3. **DEMO-3:** *FruitFlynet-ii:* Open demonstration event in Hasbaya station, Nabatiyi, South Lebanon

July 15th, 2022, Lebanese Agricultural Research Institute (LARI-P03)

Organizing Partner: P03 (LARI)
Event Name: *FruitFlyNet-ii*: Open demonstration event in Hasbaya station, Nabatiyi, South Lebanon.
Event Date: July 15th, 2022
Speakers: Eng. Amira YOUSSEF, Eng. Ahmad ELBITAR and Dr. Linda KFOURY
Physical location: LARI, Hasbaya station, South, Lebanon.
URL: https://www.enicbcmed.eu/fruitflynet-ii-presented-local-stakeholders-lebanon

Brief Description*:*
On 15th July 2022, the *FruitFlyNet-ii* team of the Lebanese Agriculture Research Institute (LARI) organized an open dissemination event, in Hasbaya in south of Lebanon, where the experimental site has been chosen.
At the beginning Eng. Amira YOUSSEF head of Hasbaya station (LARI) welcomed the farmers, engineers, researchers and all the attendees. After that, the national coordinator of the project Eng. Ahmad ELBITAR provided a general definition, nominated the participating countries (European and non-European) and talked about the duration of the project. Mr. ELBITAR cited the difficulties that delayed the start of the project's execution in Lebanon. He explained in detail the objectives as well as the methodology of the work during the implementation of the project. Eng. ELBITAR focused on the beneficiaries of this project: the farmers and producers of olive and olive oil are the main beneficiaries in the short term, while the environment, the total olive sector in Lebanon and consequently the Lebanese economy, will be the sustainable beneficiaries in the long term.
The second lecture was delivered by the technical manager, Dr. Linda KFOURY. She exposed in detail the life cycle of *Bactrocera oleae*, the optimum conditions to its development, the provoked damage and the economic importance which this pest represents in our agricultural sector. Dr. KFOURY talked about the importance of the E-Trap to monitor *Bactrocera oleae*. She presented the benefit solutions the project can offer to the farmers for a more effective and environmentally friendly control of the olive fly and through precise and timely monitoring, spraying decisions, and spraying applications.
At the end of the presentation there was a fruitful discussion between the project work team and the participants in this event. The main questions asked by the farmers were about the insect and how to fight against it, the price, and the availability of these e-traps in Lebanon.

Presentations:
P03_15.07.2022_A.ELBITAR&L.KFOURY.pdf: Open demonstration event July 15, 2022).

Photo 1. *Eng. Amira YOUSSEF welcomed the participants*

Photo 2. *LPC. Ahmad ELBITAR, overview about FruitFlyNet- ii*

Photo 3. *Dr. Linda KFOURY, life cycle of Bactrocera oleae*

Photo 4. *Attendees'*

Photo 5. *Discussions*

4. **DEMO-4**: Citrus fruits owners in Greece inducted to *FruitFlyNet-ii* new treatment of med fly.

January 19th, 2023, Agricultural University of Athens (AUA-BEN)

Demo Elements

Organizing Partner: BEN (AUA)
Event Name: Citrus fruits owners in Greece inducted to *FruitFlyNet-ii* new treatment of med fly.
Event Date: 19th January 2023
Agenda: Open discussion
Speakers: Assoc. Prof. Dionysios Perdikis, Prof. Theodoros Tsiligiridis
List/No of participants: No List/12 participants (cooperative union, producers/farmers).
Physical location/ Line: Cooperatives' Union in Citrus Fruits of Skala, Lakonia, Greece
URL: Citrus fruits owners in Greece are inducted to FruitFlyNet-ii new treatment of med fly | ENI CBC Med
Brief Description*:* On 19th January 2023, the *FruitFlyNet-ii* team of the Agricultural University of Athens, lead beneficiary of the project, organized an informational meeting with members of the Agricultural Cooperative in Citrus Fruits of Skala 'Sparta oranges', at the premises of the Cooperatives' Union in Laconia prefecture, Peloponnese, Greece. The research team consisted of Theodore Tsiligiridis (Professor of Informatics), Dionysios Perdikis (Associate Professor of Entomology), Director and Technical Director of the project, respectively, and Marios Sotiras (PhD candidate of Entomology).
Professor Tsiligiridis, made a general oral introduction to the aims of the project and the critical role of the farmers to its success, following by a presentation of the *MedFlyNet* e-trap, components, and functioning, as well, a short presentation of its e-services. In sequel, Assoc. Professor Perdikis, presented the critical solutions the project can offer to the farmers for a more effective and environmentally friendly control of the med fly and through precise and timely monitoring, spraying decisions, and spraying applications.
The event attended by members of the local agricultural union who expressed their powerful desire for implementing *MedFlyNet* system in their citrus fruits orchards while the present agronomists had the opportunity to informed for the latest advances in precision agriculture.

Presentations: Oral presentations by Professor Theodore Tsiligiridis and Associate Professor Dionysios Perdikis.

Figures/Photos:

Photos: *An overview of the meeting with cooperative union of citrus (mainly oranges and mandarins) in Skala, Laconia, in the region of South Peloponnesus.*

5. **DEMO-5**: *FruitFlyNet-ii:* e-trap prototype demonstration in Hasbaya station, Nabatiyi, South Lebanon

March 14th, 2023, Lebanese Agricultural Research Institute (LARI-P03)

Demo elements

Organising Partner: P03 (LARI)
Event Name: *FruitFlyNet-ii*: e-trap prototype demonstration in Hasbaya station, Nabatiyi, South Lebanon.
Event Date: March 14th, 2023
Agenda: Figure 1
Speakers: Dr. Michael AFRAM, Ahmad ELBITAR, Dr. Linda KFOURY
List/No of participants: Figure 2/65 participants (producers/farmers, researchers).
Physical location/ Line: LARI - Tal Amara- Bekaa- Lebanon.
URL: https://play.google.com/store/apps/details?id=com.moussawi7.lari&hl=en&gl=US
Brief description: *FruitFlyNet-ii* project team of the LARI, organized an event for e-trap prototype demonstration. Local project coordinator Ahmad ELBITAR introduced the project aims and he explained in detail the prototype of the e-trap since he explained the e-trap designed to prove the viability of new technologies that offer a potential economic advantage and environmentally friendly. The project technical manager presented the results achieved from the experimental sites and she gave a detailed scientific analysis of the Olive fly, the time this fly attacks the olives and how to control the fly. Positive feedback from the audience who expressed strong desire for implementing the e-trap in their olive orchards.

Presentations: *P03_14.03.2023_AhmatELBITAR.pdf*, *P03_14.03.2023_LindaKFOURY.pdf*

Figures/Photos:


FruitFlyNet II

FruitFlyNet-II
Strategic: B_A2.1_0048
ENI CBC MED

Agenda

of e-trap prototype demonstration
March 14, 2023

Lebanese Agricultural Research Institute
Hasbaya - Naboulsi- Lebanon


FruitFlyNet II

Figure 1: *Agenda of the Open dissemination event at the LU*

Figure 2: *List and number of participants*

Photo 1: *Eng. Ahmad ELBITAR, E-trap prototype*

Photo 2*: Dr. Linda KFOURY, results presentation*

Photos 3-4: *Event Overview***.**

6. **DEMO-6:** *FruitFlyNet-ii*: e-trap prototype demonstration in Tal Amara station, Zahle, Bekaa, Lebanon

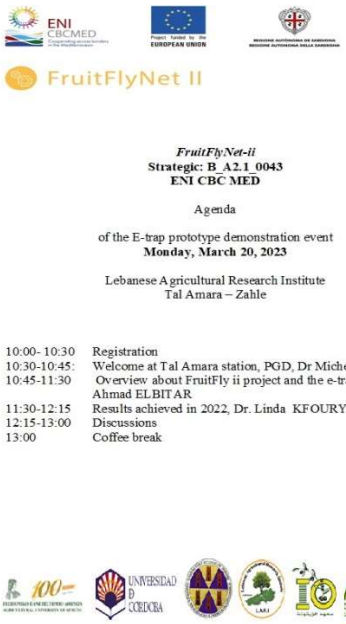
March 20th, 2023, Lebanese Agricultural Research Institute (LARI-P03)

Demo Elements

Organising Partner: P03 (LARI)
Event Name: ***FruitFlyNet-ii***: e-trap prototype demonstration in LARI, Tal Amara, Bekaa, Lebanon.
Date Event: March 20th, 2023
Agenda: Figure 1
Speakers: President Dr. Michael AFRAM, Local Coordinator Ahmad ELBITAR, Dr. Linda KFOURY
List/No of participants: Figure 2 (132 (producers/farmers, researchers).
Physical location/ Line: LARI - Tal Amara- Bekaa- Lebanon.
URL: https://play.google.com/store/apps/details?id=com.moussawi7.lari&hl=en&gl=US
Brief description: Within the framework of ***FruitFlyNet-ii*** project, members of the Lebanese Agriculture Research Institute - LARI, project partner, organized an event for demonstrating e-trap prototype. The event organized on March 20 ,2023 at the premises of LARI in Tal Amara. The event was aiming to farmers, agro-industrial, local economies, researchers, entomologists, agriculture engineers, SMEs and network engineers.
Dr. Michel AFRAM, President, General Director of LARI and legal representative of the project, welcomed the audience and delivered a speech explaining the importance of ***FruitFlyNet-ii*** project showing its environmental and economic benefits.
The local project coordinator Ahmad ELBITAR presented the project aims and he explained to audience the prototype of the e-trap that designed to prove the viability of recent technologies that offer a potential economic advantage and environmentally friendly.
Dr. Linda KFOURY, project technical manager presented the results achieved from the three experimental sites located in Hasbaya to study the deployment and operation of LAS, by using conventional traps . Dr. KFOURY provided a scientific analysis of the Olive fly, the time this fly attacks the olives and how to control the fly. Feedback diversified from the audience and It is not the number of people who came for the event that decided it's success. But the number of people who expressed their interest for what they experienced and learned during the even.

Presentations: *P03_14.03.2023_AhmatELBITAR.pdf*, *P03_14.03.2023_LindaKFOURY.pdf*

Figures/Photos:



FruitFlyNet-ii
Strategic: B_A2.1_0043
ENI CBC MED

Agenda

of the E-trap prototype demonstration event
Monday, March 20, 2023

Lebanese Agricultural Research Institute
Tal Amara – Zahle

10:00- 10:30	Registration
10:30-10:45:	Welcome at Tal Amara station, PGD, Dr Michel AFRAM
10:45-11:30	Overview about FruitFly ii project and the e-trap prototype, Eng. Ahmad ELBITAR
11:30-12:15	Results achieved in 2022, Dr. Linda KFOURY
12:15-13:00	Discussions
13:00	Coffee break

Figure 1: *Agenda of the E-trap prototype demonstration event in Tal Amara*

Figure 2: *List and number of participants, 120 (farmers, agro-industrial, local economies, researchers, entomologists, agriculture engineers, SMEs and network engineers).*

Photo 1: *President of LARI Dr. Michel AFRAM, Local Coordinator Ahmad ELBITAR and Dr. Linda KFOURY,*

Photo 2: *Dr. Michel AFRAM welcomed the participants*

Photo 3: *Local Coordinator Ahmad ELBITAR, E-trap prototype presentation*

Photo 4: *Dr. Linda KFOURY, results presentation*

Photo 5: *Meeting Overview*

7. **DEMO-7:** *FruitFlyNet-ii* in Spain presented the olive fly e-trap prototype and the associated e-services.

April 12-13, 2023, University of Cordoba (UCO-P01)

Demo Elements

Organizing Partner: P01 (UCO)
Event Name: ***FruitFlyNet-ii*** in Spain presented the olive fly e-trap prototype and the associated e-services.
Event Date: 12-13 April 2023
Agenda: Figure 1
Speakers: Assistant Professor Meelad Yousef
List/No of participants: No List/50 participants (producers/farmers, researchers).
Presentations: P01_12.04.2023_Yousef.pdf
Physical location/ Line: 3rd Professional Meeting of Collaborative Industry 4.0, Córdoba. Andalusia, Spain
URL: FruitFlyNet-ii in Spain presented its olive fly e-traps prototype and associated e-services | ENI CBC Med
Brief Description*: FruitFlyNet-ii* in Spain presented its olive fly e-traps prototype and associated e-services.
Already, walking on the final stage of the project and after completing several steps toward the assembling and installing of ***FuritFlyNet-ii*** system at a wide area experimental field, the technical team of P01 (UCO - ETSIAM), organized the first demonstration and dissemination event for its components (e-traps and e-services) to the agrifood domestic industry.
In collaboration with the local authority of the region of Andalusia (Junta de Andalucía), the project demonstration took place during the 3rd Professional Meeting of Collaborative Industry 4.0 held in Córdoba on 12-13th of April 2023. Assistant Professor Meelad Yousef, local coordinator of the project, together with the technical managers, Emilio Calvo Cerezo and Flora Moreno Alcaide, performed the demonstration event targeting farmers, cooperatives, institutions, members of the Integrated Pest Management (IPM) industry, and various stakeholders.
Firstly, Assistant Prof. Yousef gave a speech covering important aspects of the olive fruit fly *Bactrocera oleae* (Rossi) as the main insect pest of olive crop worldwide, with direct damage to the production and quality of olive oil and table olives. Also, his presentation included the state of the art on olive fruit fly control and monitoring, focusing on the advantages and disadvantages of each method (conventional traps, chemistry products, entomopathogenic fungi, etc.) and the future perspectives on IPM legislation. To resolve the disadvantages of the actual monitoring system, digital technologies can help to improve this method by increasing the temporal resolution of the data with lower field visits and the elaboration of risk maps integrated into a Decision Support System (DSS) which will provide a real-time monitoring data and precise risk maps for decision making.
Also, the technical team distributed flyers to the public containing information about the project. Then, Assistant Professor Meelad Yousef enumerated the objectives of ***FruitFlyNet-ii*** project, its methodology, and its two main components: the olive fly e-traps prototype and the set of e-services associated to them. Detailed information also given about the e-services that allow the identification of the pest, the digitalization of wide areas, the creation of risk maps for a DSS, and a route for optimized spraying. Consequently, the team members received questions and

inquiries from the participants, followed by an interesting discussion and exchange of experiences, opinions, and perspectives about project components.
The attendees gave positive feedback and expressed a strong interest in ***FruitFlyNet-ii***'s work and its next steps. Finally, the technical team of the project received all the suggestions for improving the work of the project components in the future and innovative ideas regarding the commercial models of the project outputs. Following Yousef's presentation, the participants took a questionnaire and discussed the advantages and disadvantages they found in the electronic trap and how they could improve it.
Advantages, disadvantages, and possible improvements
Advantages

- Daily information on olive fruit fly population.
- Fewer field visits.
- Olive fruit fly control at the optimum time and spraying route.
- Reduction in the use of phytosanitary products.
- More environmentally sustainable.

Disadvantages

- Dependence on technology: The use of electronic traps implies dependence on technology, including power supply and connection to a server, which can generate problems if there are interruptions or technical failures.
- Training and qualification of technicians in technology is needed.
- More costly to maintenance than conventional trapping.
- Image shadowing.
- Acquisition cost.

Possible improvements

- System for recording and counting flies caught in the trap.
- More compact and lighter design.
- Consider new methods to send images in places without good wireless network.

Presentations: *P01_12.04.2023_Yousef.pdf*

Figures/Photos:

AGENDA

1st demonstration of the electronic trap for monitoring and control of the olive fruit fly

12-13 April 2023

Cordoba (Spain)

9:00-9:30 Welcome

9:30-10:30 Taxonomic classification, morphology, biology and life cycle of the olive fruit fly *(Bactrocera oleae)*(Rossi)

10:30-11:30 Monitoring and control of olive fruit fly

11:30-12:30 Advances on e-services

12:30-14:00 Simulation of the operation of an electronic trap (setting, identification and tracking).

Figure 1: Agenda of the Demonstration

Photo 1: *Assistant Prof. Yousef Meelad discusses important aspects of the electronic olive fruit fly e-trap.*

Photo 2: *Assistant Prof. Yousef Meelad answers participants' questions.*

Photo 3: *Emilio discusses the different aspects of the OliveFlyNet*

Photo 4: *Advertising material for the event.*

8. **DEMO-8:** *FruitFlynet-ii*: *OliveFlyTrap* prototype demonstration in the agricultural center of Hermel, Northern Bekaa, Lebanon

July 22nd, 2023, Lebanese Agricultural Research Institute (LARI-P03)

Demo Elements

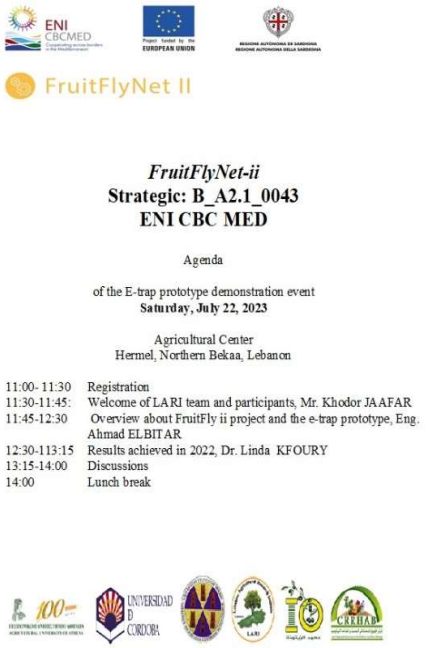
Organising Partner: P03 (LARI)
Event Name: *FruitFlyNet-ii*: *OliveFlyTrap* prototype demonstration in the Hermel, Northern Bekaa, Lebanon.
Event Date: July 22th, 2023
Agenda: Figure 1
Speakers: Mr. Khodor JAAFAR, Local Coordinator Ahmad ELBITAR and Dr. Linda KFOURY
List/No of participants: Figure 2 (29 farmers, agriculture engineer, entomologists, SME's, cooperatives owners, olive mills owners and researchers).
Physical location: Agricultural Center, Hermel, Northern Bekaa, Lebanon.
URL: https://www.facebook.com/FruitFlyNet2
Brief Description*:*
Within the framework of ***FruitFlyNet-ii*** project, LARI project team organized a E-trap prototype demonstration event. The event organized on July 22,2023 at the Agricultural Center of Hermel city in northern Bekaa of Lebanon. The event counted more than thirty (30) participants diversified between farmers, agriculture engineer, entomologists, SME's, cooperatives owners, olive mills owners and researchers.
Mr. Khodor JAAFAR, Director of the Agricultural Center in Hermel, welcomed LARI team and the participants. Mr. JAAFAR speech was about the importance of olive orchards in Hermel city as he mentioned that the olive trees in Hermel vary from 350,000 tree to 500,000 tree and the number is still growing with efforts to make the production organic and free of any chemical residue. In addition, he said that a new olive mill created and green house for propagation of olive trees made.
Eng. Ahmad ELBITAR, project coordinator, presented the project aims and he explained to audience the prototype of the e-trap that designed to prove the viability of recent technologies that offer a potential economic advantage and environmentally friendly.
Dr.Linda KFOURY, project technical manager presented the results achieved from the three experimental sites located in Hasbaya, Lebanon to study the deployment and operation of LAS. Dr. KFOURY provided a scientific analysis of the Olive fly, the time this fly attacks the olives and how to control the fly.
Feedback diversified from the audience since they expressed their interest for what they experienced and learned during the event and following questions raised during the event:

- e-trap price?
- Can conventional traps replace the e-traps?
- Availability of the e-trap in the market?
- Lifetime of the e-trap?
- At what temperature the olive fruit fly attack?

- Chemical treatment used to avoid the olive fly attack?
- Any preventive treatments can be done to avoid any infection by *Bactrocara olea*

Presentations: *P03_22.07.2023_AhmatELBITAR.pdf*, *P03_22.07.2023_LindaKFOURY.pdf*

Figures/Photos:



FruitFlyNet-ii
Strategic: B_A2.1_0043
ENI CBC MED

Agenda

of the E-trap prototype demonstration event
Saturday, July 22, 2023

Agricultural Center
Hermel, Northern Bekaa, Lebanon

11:00- 11:30	Registration
11:30-11:45:	Welcome of LARI team and participants, Mr. Khodor JAAFAR
11:45-12:30	Overview about FruitFly ii project and the e-trap prototype, Eng. Ahmad ELBITAR
12:30-113:15	Results achieved in 2022, Dr. Linda KFOURY
13:15-14:00	Discussions
14:00	Lunch break

Figure 1: *Agenda of the E-trap prototype demonstration event in Hermel*

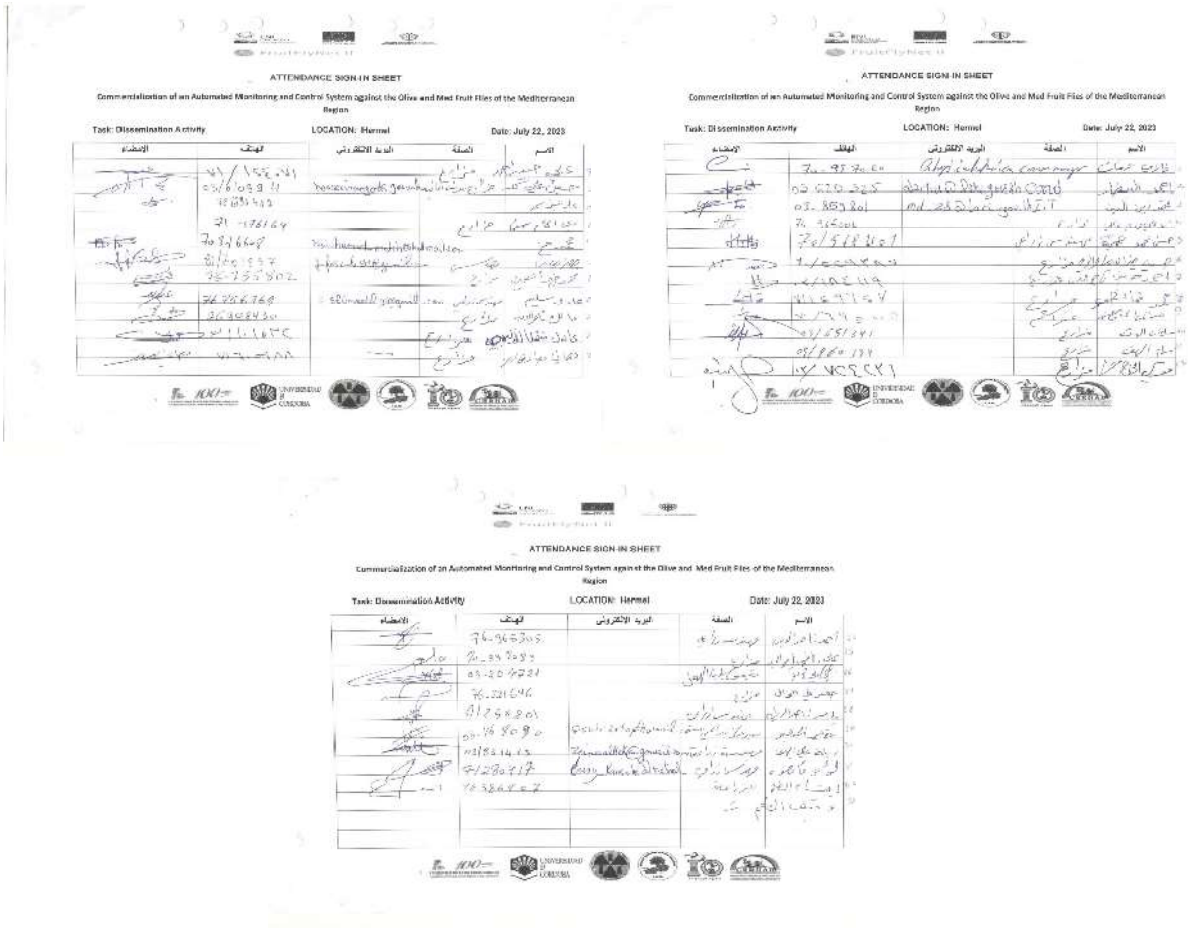


Figure 2: *List and number of participants: 29 (farmers, agriculture engineer, entomologists, SME's, cooperatives owners, olive mills owners and researchers)*

Photo 1: *Mr. Khodor JAAFAR welcomed the participants.*

Photo 2: *Ahmad ELBITAR presenting the e-trap prototype*

Photo 3: *Dr. Linda KFOURY presenting the life cycle of Bactrocera oleae*

Photo 4: *Meeting overview*

9. **DEMO-9:** *FruitFlyNet-ii*: The *MedFlyNet* in-field demonstration event at Khlidia site, in Tunisia

Tuesday 19 September 2023, Mabrouka nursery, Ben Arous, Tunisia

Demo Elements

Organizing Partner: The Regional Research Centre on Horticulture and Organic Agriculture at Chott-Mariem, Tunisia.

Event Name: The *MedFlyNet* in-field demonstration event at Khlidia site, in Tunisia. A demonstration day on the use of the electronic traps to monitor the Mediterranean FruitFly, *Ceratitis capitata* in peach orchard and how to implement the Location Aware System (LAS).

Event Date: Tuesday, 19th September 2023.

Agenda: Figure 1

List/No of participants: Figure 2 (69 producers/farmers, researchers)**.**

Speakers: the local project coordinator Prof. Mohamed BRAHAM the Project Informatics Engineer Mr. Ahmed MOUSSA, the technical Manager Hassib BENKHEDHER, and the Project technician Amal LAMOUCHI.

Physical location: the Mabrouka company (Khlidia, Ben Arous, Tunisia).

URL: https://www.enicbcmed.eu/medflynet-field-demonstration-event-khlidia-site-tunisia

Brief Description: An open dissemination event (demonstration day) about the use of electronic traps for monitoring MedFly in orchards and the implementation of the LAS in peach orchards was organized by the Regional Research Centre on Horticulture and Organic Agriculture with the help of Olive Institute (Partner 4) on September 19, 2023 (see Figure 1; the agenda). The event took place at the Mabrouka Company, which hosted the *FruitFlyNet-ii* project field experiments. Around 70 people attended: Citrus and stone fruits growers, PhD students, researchers, engineers, specialists in plant protection, private plant protection companies, agricultural engineers, and technicians from the public agriculture sector.

Professor Mohamed Braham, the local project coordinator gave a welcome address and presented the Project *FruitFlyNet-ii*, its objectives and some results already achieved and highlighted the good cooperation with the partner Mabrouka Company, for her support in field experiments. Then the Engineer, Sondes Telmoudi, from Mabrouka Company presented the society and emphasized the good partnership between CRRHAB Chott-Mariem and the Mabrouka company.

After that, Prof. Braham outlined how the program would unfold: the first part would be devoted to scientific presentations in the meeting room (session 1), and the second to a demonstration in the peach orchard (session 2). So, the participants were divided into two groups. The first attended the presentations, while the second followed the demonstration (operation of e-traps, geo database, data collection via GPS and tablet) and then the groups rotated.

The first talk was given by Pr. Braham entitled “Presentation of the *FruitFlyNet-ii* project and the importance of the Mediterranean fruit fly, *Ceratitis capitata* in Tunisia” emphasizing the problem of MedFly and the importance of collaboration between Mediterranean countries to control this insect and detailed how to implement the Location Aware System in Tunisia.

Then, Dr. Ines Ksentini, the local project coordinator from the Olive Institut gave a presentation entitled “Importance of the olive fly, *Bactrocera oleae* in Tunisia and implementation of a monitoring system. She focused on the importance of the olive fruit fly, *Bactrocera oleae*, as the main insect pest of olive crops worldwide, directly affecting olive oil quality and olive production. With the technical team, Manel Ben Ameur and Dr. Marwa Bouri, she introduced the Location Aware System (LAS) prototypes regarding the e-trap functioning and the e-services.
Regarding field demonstration, Mr. Hassib Ben khedher (technical Manager), Ahmed Moussa (informatics Engineer), and Amal Lamouchi; the technical team from the Regional Centre Research in Horticulture and Organic Agriculture (CRRHAB) presented the process and steps needed to the implementation of the local Aware System (LAS), how to operate the field digitization and geospatial data collection like field borders, tree location, protected area, organic farms, cultivars, location of traps and habitat location. Then, they introduced the e-traps operating mode in the peach orchard: how the e-traps work, when and how the system takes images of the trapped insects glued in sticky plates, how it is powered, etc. The technical team did its best to simplify and explain the e-trap system for participants.
Discussions that followed each presentation were fruitful and very interesting and interactions among attendees (students, teachers, researchers, engineers, technical managers of farms, entomologists) made interesting debates of technical, economic, and environmental concerns.

Presentations: *P05_19.09.2023_Braham.pdf.*

***MedFlyNet-ii* questionnaire:**

***FruitFlyNet-ii* questionnaire**: a questioner having eleven (11) questions was submitted to participants to investigate their opinion relating to the use of electronic traps. Twelve (12) responses were received.

FruitFlyNet-ii هو مشروع أورومتوسطي ممول من قبل الإتحاد الأوروبي ويهدف الى تسويق نظام رصد ومتابعة لذبابة الزيتون وذبابة الفاكهة المتوسطية في منطقة المتوسط. يتم ذلك من خلال تطوير مجموعة كاملة ومتكاملة من الحلول للمزارع من أجل الرصد الإلكتروني للذبابة.
ترتكز منهجية المشروع خاصة على نموذجين من الفخاخ الإلكترونية، واحدة لكل آفة مستهدفة. بالإضافة الى مجموعة من الخدمات الإلكترونية، واحدة لكل أنموذج.

Name الاسم..(optionnel).....
Surname اللقب.....
Age العمر.....

1- Do you have peach or orange trees?

هل تملك أشجار خوخ أو برتقال ؟

.....

2- What problems have you noticed in your orchard?

ماهي المشاكل التي تواجهها مع أشجار الخوخ أو البرتقال؟

.....

3- How do you control the Medfly ?

ماهي الطريقة التي تستعملها لمكافحة ذبابة الفاكهة المتوسطية؟

.....

4. Do you use insecticides to control the MedFly ?

هل تستخدم المبيدات الحشرية لمكافحة ذبابة الفاكهة المتوسطية

.....

4.1 If Yes, Do you Know the name of insecticides used ?

ماهي اسماء المبيدات الحشرية المستخدمة؟

.....

4.2 The number of applications per year (per season)

ماهو عدد مرات المداوة المتبع (خلال سنة أو خلال الموسم)

.....

5- Do you use conventional trap to monitor the Med Fly

هل تستخدم المصائد التقليدية لمكافحة ذبابة الفاكهة المتوسطية

.....

5.1. If yes. What kind of trap do you use

ماهي أنواع المصائد المستخدمة

Delta trap Mac Phail trap Others

6. How to decide to treat your orchard ?

كيف تقرر مداواة الأشجار

According to trap capture

حسب عدد الذباب الموجود بالمصيدة

At calendar basis

التقويم الأساسي المبرمج

7- Do you heard about electronic traps ? Yes No

هل واجهت فكرة المصائد الإلكترونية

8- Do you think that electronic traps can handle the Ceratitis problem? Yes No

هل تعتقد أن المصائد الإلكترونية قادرة على معالجة مشكلة ذبابة الفاكهة المتوسطية

9-What do you think of the use of electronic traps in the field? simple complicated

ما رأيك في طريقة استخدام المصائد الإلكترونية

معقد بسيطة

10-Are you able to install electronic traps in your orchards? Yes No

هل يمكنكم تركيب المصائد الإلكترونية في بساتينكم؟

11- If you are convinced of the importance of electronic traps, are you able to buy them regardless of their price? If yes, please suggest a price. Yes No

إذا كنت مقتنعاً بأهمية المصائد الإلكترونية، هل أنت قادر على شرائها مهما كان سعرها؟

.....

Analysis and Results: Figure 3

In response to the questionnaire results obtained and analyzed from the participants please see Figure 3

The filled questionnaires are in the attached files: P05_19.09.2023_AnsQuest.pdf.

Figures/Photos:

FruitFlyNet-ii
STR: B_A2.1_0043
ENI CBC MED

Agenda

Open Dissemination Event

Regional Research Center on Horticulture and Organic Agriculture (CRRHAB)- Chott-Mariem - Sousse

Mabrouka Nursery- Khelidia - Ben Arous

Tuesday, 19th September 2023

Open Dissemination Event of the FruitFlyNet-ii project

Mabrouka Nursery, Khelidia, Ben Arous, Tunisia

- Tuesday, 19th September 2023 -

9 H-9H15. Welcome and registration
9H15-9H30. Opening – Welcome address Prof. Mohamed BRAHAM (CRRHAB), Project coordinator / Mr. Mokhtar MECHICHI, Technical Manager in Mabrouka nursery.
9H30-9H45. Presentation of the Mabrouka nursery (Mr. Mokhtar MECHICHI/ Eng. Sondes TELMOUDI)

1st session

9H45-10H15. Presentation of the FruitFlyNet-ii Project and the importance of the Mediterranean fruit fly, *Ceratitis capitata* in Tunisia
(Prof. Mohamed BRAHAM)

10H15-10H45. Importance of the olive fly, *Bactrocera oleae* in Tunisia and implementation of a monitoring system [(Dr. Ines KSENTINI, (Institut de l'Olivier)/ Prof. Mohieddine KSENTINI, (Institut de l'Olivier)/ Eng. Manel BEN AMEUR (Institut de l'Olivier) and Dr. Marwa BOURI (Institut de l'Olivier)]

10H45-11H15. coffee Break

2nd session

11H15-12H30. Implementation of a Location Aware System (LAS) and field demonstration on the use of electronic traps for monitoring Medfly on peach in Tunisia [Dr. Hassib BEN KHEDHER (CRRHAB), Eng. Ahmed MOUSSA (CRRHAB) and Eng. Amal LAMOUCHI (CRRHAB)].

12H 30. Discussion and closing

Figure 1: *Agenda*

Open Dissemination Event du projet FruitFlyNet-ii

19-09-2023

Nom et Prénom	Etablissement	E-mail	Signature

Open Dissemination Event du projet FruitFlyNet-ii

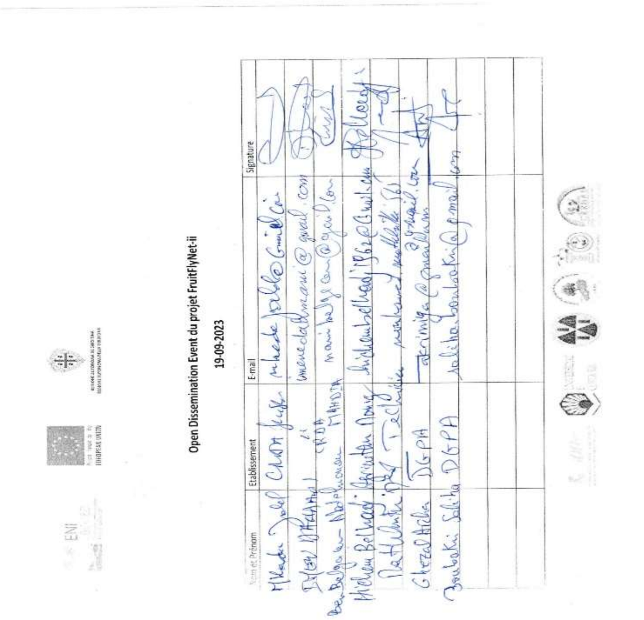
19-09-2023

Nom et Prénom	Etablissement	E-mail	Signature

Open Dissemination Event du projet FruitFlyNet-ii

19-09-2023

Nom et Prénom	Etablissement	E-mail	Signature

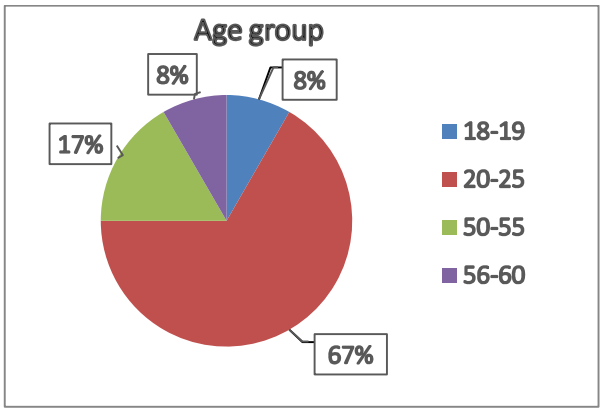


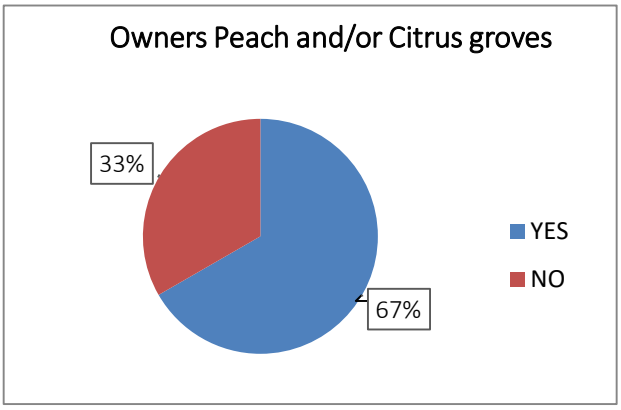
Open Dissemination Event du projet FruitFlyNet-ii

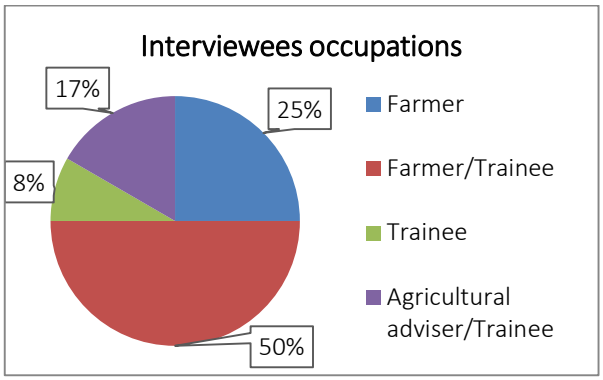
19-09-2023

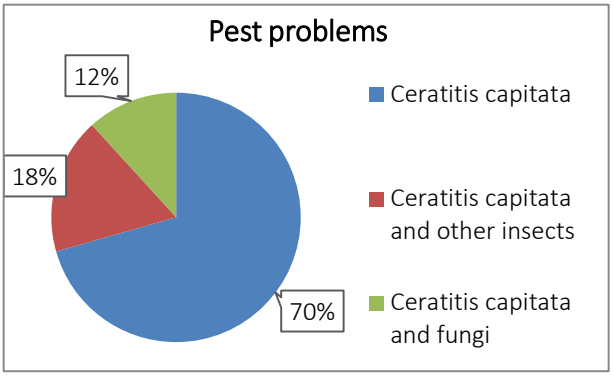
Nom et Prénom	Etablissement	E-mail	Signature

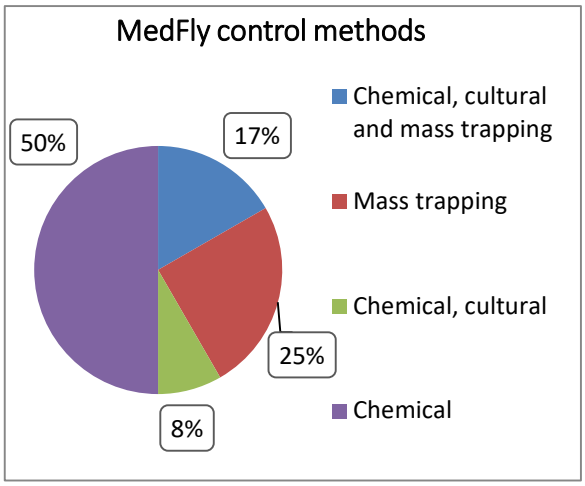
Figure 2: *List of Participants*

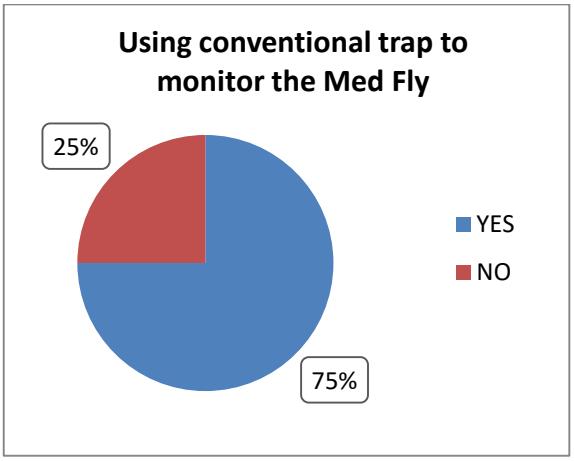

Age group
8%
8%
17%
67%
18-19
20-25
50-55
56-60

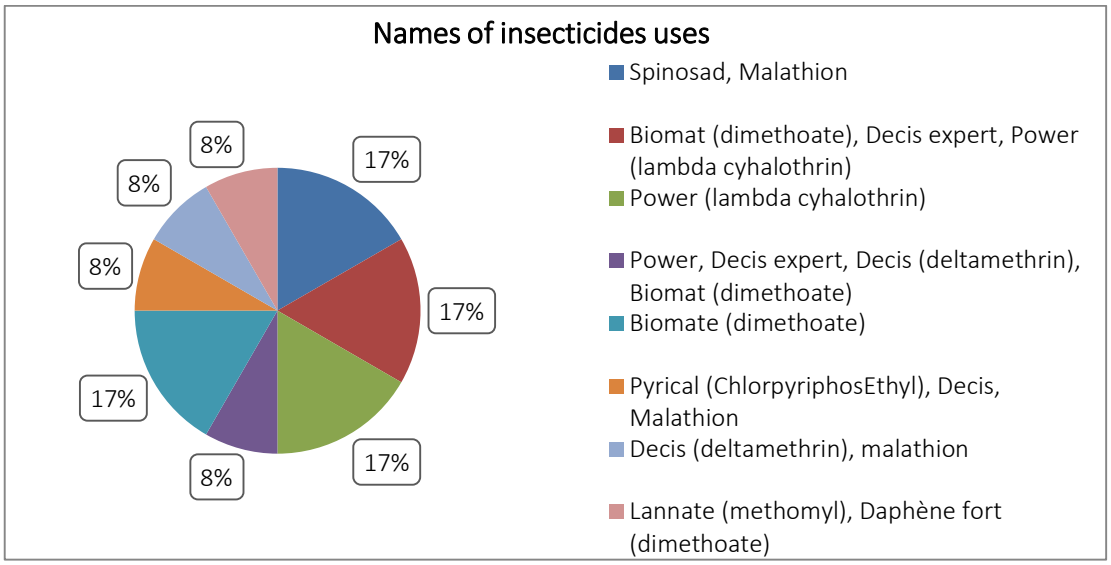

Owners Peach and/or Citrus groves
33%
67%
YES
NO

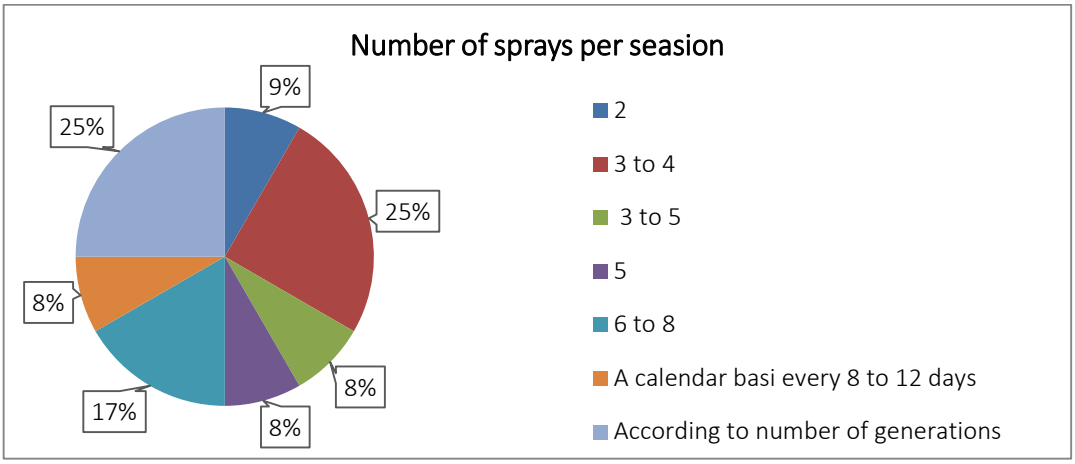

Interviewees occupations
17%
25%
8%
50%
Farmer
Farmer/Trainee
Trainee
Agricultural adviser/Trainee

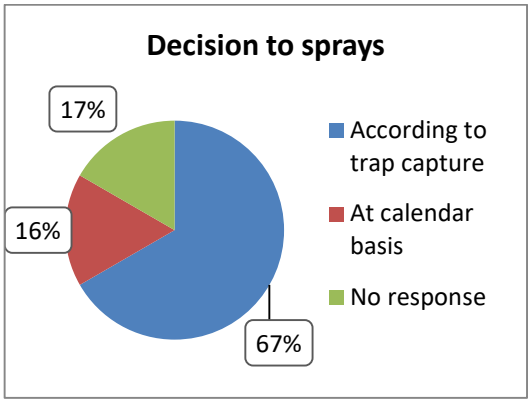

Pest problems
12%
18%
70%
Ceratitis capitata
Ceratitis capitata and other insects
Ceratitis capitata and fungi

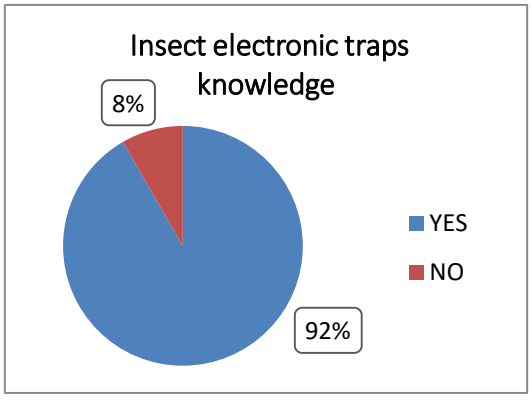

MedFly control methods
50%
17%
25%
8%
Chemical, cultural and mass trapping
Mass trapping
Chemical, cultural
Chemical


Using conventional trap to monitor the Med Fly
25%
75%
YES
NO


Names of insecticides uses
17%
17%
17%
8%
17%
8%
8%
8%
Spinosad, Malathion
Biomat (dimethoate), Decis expert, Power (lambda cyhalothrin)
Power (lambda cyhalothrin)
Power, Decis expert, Decis (deltamethrin), Biomat (dimethoate)
Biomate (dimethoate)
Pyrical (ChlorpyriphosEthyl), Decis, Malathion
Decis (deltamethrin), malathion
Lannate (methomyl), Daphène fort (dimethoate)


Number of sprays per season
9%
25%
25%
8%
8%
17%
8%
2
3 to 4
3 to 5
5
6 to 8
A calendar basi every 8 to 12 days
According to number of generations


Decision to sprays
17%
16%
67%
According to trap capture
At calendar basis
No response


Insect electronic traps knowledge
8%
92%
YES
NO

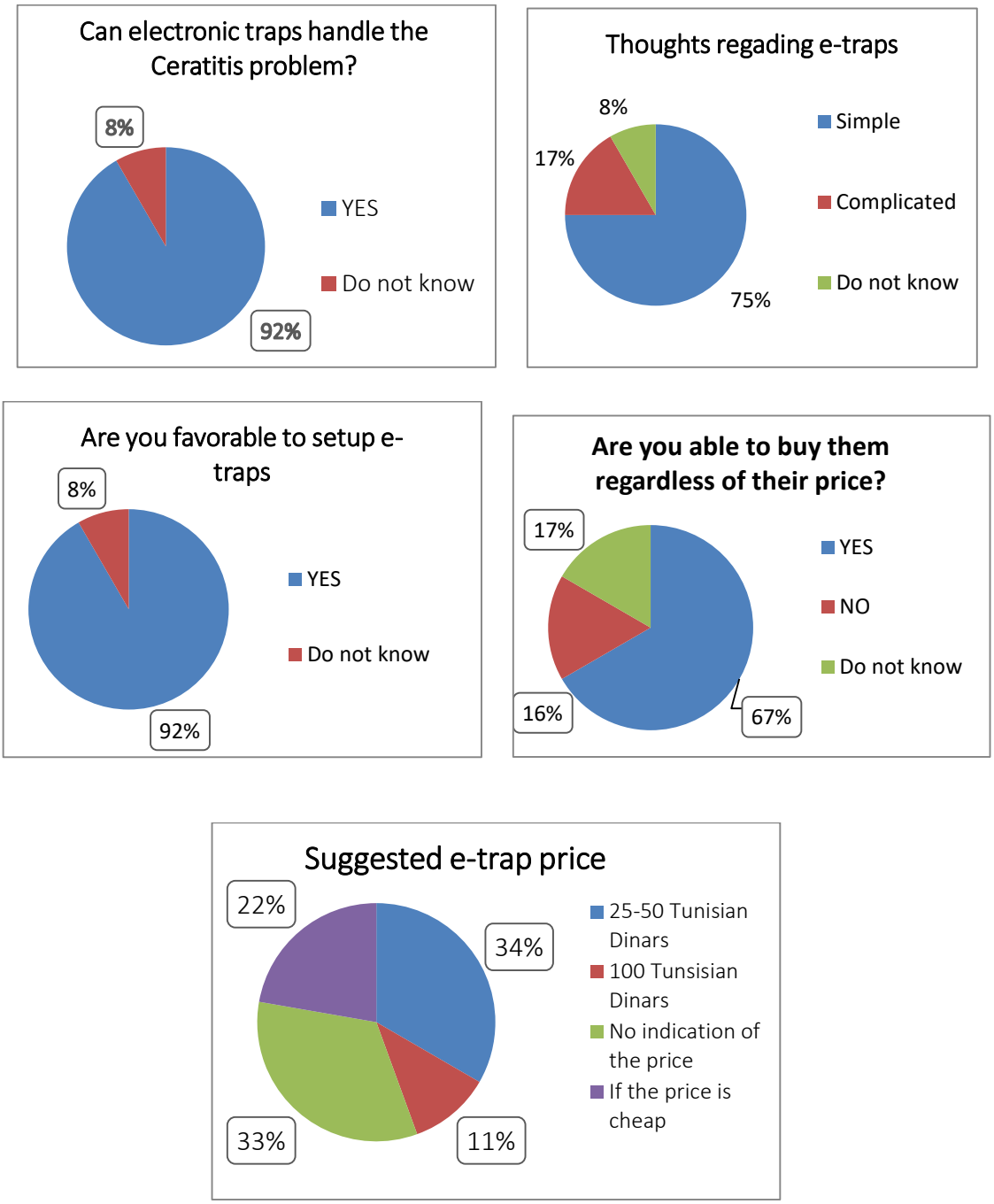


Figure 3: *Responses obtained from the questionnaire*

Photos 1-4: *An overview of the various activities of the demonstration of the MedFlyNet*

10. **DEMOs-10/11:** *FruitFlyNet-ii* in Tunisia hosted a two-day Living Lab to present e-services against the olive fly.

October 4-5th, 2023, Olive Tree Institute (IO-P04)

Demo Elements

Organising Partner: P04 (IO)
Event Name: ***FruitFlyNet-ii*** in Tunisia hosted a two-day Living Lab to present e-services against the olive fly.
Event Dates: October 4-5th, 2023
Agenda: Figure 1
Speakers: Pr. Mohieddine Ksantini, Dr Ines Ksentini, Dr Zayneb Chaaben, Dr. Marwa Bouri Mrs. Manel Ben Ameur
List/No of participants: Figure 2/ 40 (First Day) - 34 (Second Day) (producers/farmers, researchers)
Physical location/ Line: Sfax, Tunisia.
URL: FruitFlyNet-ii in Tunisia hosted a two-day Living Lab to present e-services against medfly | ENI CBC Med
Brief description: The first living lab was made on 04 October 2023. The second on October 05, 2023. For the first living lab, early in the morning, 40 participants were present in front of the administrative headquarters of the Olive Tree Institute. They registered and then went to "Taous"; the experimental site of the Olive Tree Institute by two minibuses.
Communication material has been distributed to participants at the check-in. In each bus, project coordinators were presented. Dr. Ines Ksentini and Pr. Mohieddine Ksantini. The travel took about 30 minutes. During that, coordinators orally presented the project and introduced the living labs.
In Taous, the participants accompanied by the project team went directly to the experimental plot where they visited the e-trap. Then, an external team recommended by the Olive Tree Institute and responsible for the drone, showed the equipment and flew it to sweep the plot. The manipulation took around 80 minutes.
After site visit, the participants went to the Taous's room where they took a break. After the break, Dr. Zayneb Chaâbene, an expert recruited by the Olive Tree Institute to organize the living lab, and presented the concept, and of e-services.
The technical team of the project showed the e-trap and the e-services used in data processing. The limits of used e-services as well as encountered related problems have been evoked to be discussed with the participants. For more than an hour, the participants talked about the e-services and proposed solutions to our problems by adding further e-services.
The first day of the Living Lab followed by 34 participants. The same program and timing as the first day, was repeated during the second day. An evaluation sheet of 10 questions made with Google Forms has been distributed. Each participant returned the sheet before leaving the event.

Presentations: *A4.4.1*: *Presentations_IO.pdf*
Two presentations were done, one by the expert and the second one by the technical team. Coordinators presented orally during the event and is buses to the filed. Both produced presentations will be attached to this document, *P04_4-5.10.23_Chaabene.pdf*

P04_4-5.10.23_Ben Ameur-Bouri.pdf

***OliveFlyNet-ii* questionnaire :**

We sent 25 questionnaires for farmers to fill. However, only 7 of them returned them. Below is an overview of the original questionnaire sent to farmers:

PART 1

1.1) Age:

- o Under 30
- o Between 30 and 50
- o Between 51 and 65
- o Over 65

1.2) Profession (several options can be selected)

- o Agricultural entrepreneur
- o Owner of an olive grove
- o Agricultural worker
- o Agricultural technician
- o Agronomist
- o Olive mill owner
- o Other _____

1.3) Studies level

1.4) Mother tongue and spoken languages

PART 2 (to be filled out only if you are an olive grove owner or if you are responsible for an olive grove)

2.1) What is the size of your olive grove?

- o Less than 1 hectare
- o Between 1 hectare and 5 hectares
- o Between 5 and 10 hectares
- o More than 10 hectares

2.2) Are you aware of the olive fruit fly problem in your area?

- o Yes
- o No

2.3) What types of treatments do you currently use to control the olive fly?

- o Chemical pesticides – cover sprayings
- o Chemical pesticides – bait sprayings
- o Chemical pesticides – bait and cover sprayings
- o Biological methods
- o Preventive measures – mass trapping, dusts etc
- o I do not use any treatment
- o Other (specify):_____

2.4) On average how many treatments do you carry out against the olive fly in a season?

- o 1-2
- o 3-4
- o 5-7
- o More than 7

2.5) How do you decide when to apply an olive fly management technique?

- o Visual inspection of the drupes
- o Use of traditional traps
- o Consultation with an expert
- o Consultation with the local pesticide dealer
- o Regional or local warning reports of infestations
- o No specific method
- o Other (specify):_____

2.6) Would you be willing to change or supplement your current method of managing olive fly infestation? (tick answer, 0 no, would not change - 5 yes, definitely)

0 1 2 3 4 5

PART 3

3.1) Were you already aware of the existence of electronic traps and computer systems for pest management in agriculture?

- o Yes
- o No

If Yes, describe shortly:

3.2) Do you think the electronic traps can improve olive fly monitoring?
(tick answer, 0 no contribution - 5 high contribution)

0 1 2 3 4 5

3.3) Do you think that the *OliveFlyNet* system can contribute to improve olive fly management in your olive grove?
(tick answer, 0 no contribution - 5 high contribution)

0 1 2 3 4 5

3.4) Which of the following services do you think would be most important in the *OliveFlyNet* information system?

- o Digitization of the olive grove
- o Adult monitoring
- o Infestation monitoring
- o Decision Support System for insecticide treatment
- o Traceability of insecticide treatment carried out.

3.5) Would you apply or recommend the use of the OliveFlyNet system?
(please tick the answer, 0 definitely no - 5 definitely yes)

0 1 2 3 4 5

3.6) What do you think are the strengths of the *OliveFlyNet* system?
(choose the two answers you think are most important)

- o Remote monitoring, time savings and accuracy in carrying out olive fly monitoring in traps, accuracy in

applying sprayings
- o Reduction in insecticide treatment numbers/quantities
- o Greater effectiveness in protecting the olive grove particularly in years with high olive fly pressure
- o Increased timeliness of intervention

3.8) What do you think the limitations of the *OliveFlyNet* system might be?
(choose the two answers you think are most important)
- o Difficulty of installing the e-traps in the field
- o Difficulty in using the system in the field
- o Lack of confidence in the computer system
- o Difficulty in changing traditional approaches on the side of the farmer

3.9) How do you think the OliveFlyNet system could be improved to meet your needs?
_____
_____
_____

3.10) Other comments:

3.11) Do you think that t the price of electronic trap is:
low, acceptable, high or very High is :
3.12) Do you think that the use of electronic trap is more effective if it is applied in an individual or collaborative way?
3.13) Do you think that the use of electronic trap is more effective if it is always managed by the research centers which ultimately give the solution to farmers?

Analysis and Results: **Figure 3**
In response to the questionnaire results obtained and analyzed from the participants please see **Figure 3**

The filled questionnaires are in the attached files: P04_4-5.10.2023_AnsQuest.pdf

Figures/Photos:

Programme des Living Labs « Advances on e-services »

Institut de l'Olivier, Sfax, Tunisie

(04 Octobre 2023)

Ou

(05 Octobre 2023)

08:00-13 :00: ***Living Lab sur les e-services***

Modératrice: Dr. Zayneb Chaâbene (IO)

08:00-08:30: Accueil des participants au Siège Social de l'Institut de l'Olivier et enregistrement.

08 :30 : Départ vers le site expérimentale « Taous »

09 :30: Arrivée à Taous

09 :30-10 :30 : Visite sur terrain (observation : e-trap, drone)

10:30-11:00 : Pause-Café

11:00-11:30: Présentation du concept des Living Lab et des e-services (avantages)
Dr. Zayneb Chaâbene

11:30-12:00 : Essai du jour (limite des e-services).
Mme. Manel Ben Ameur (IO) et Dr. Marwa Bouri (IO)

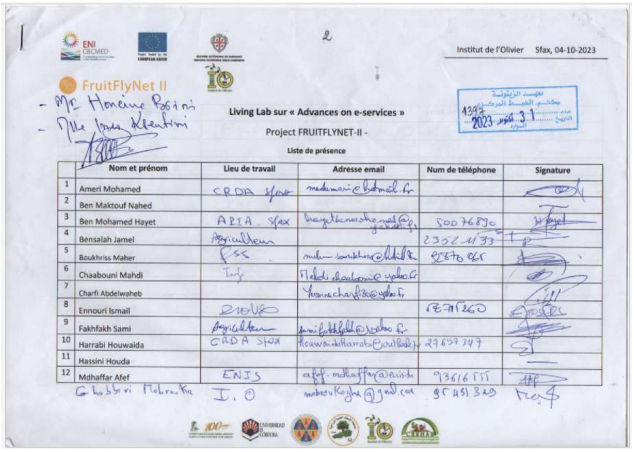
12:00-12:30 : Table ronde (Discussion).

12 :30- 13 :00 : Retour à l'IO

*vous êtes tenus de confirmer votre choix pour une seule date

Figure 1: *The agenda (Two groups, one per day and per Living Lab)*

1st demonstration day (October 4th, 2023) presence list:



Institut de l'Olivier Sfax, 04-10-2023

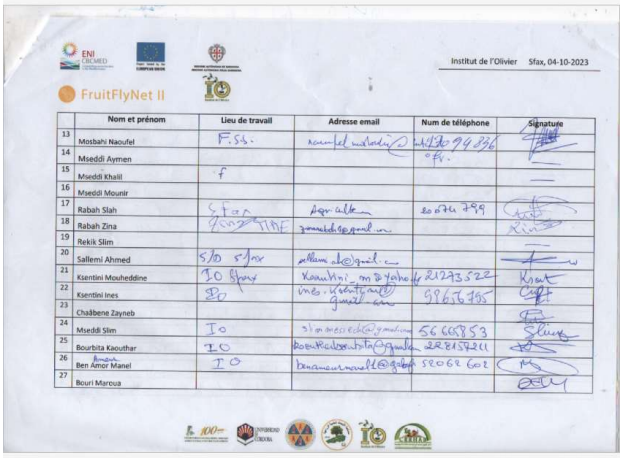
FruitFlyNet II

Living Lab sur « Advances on e-services »

Project FRUITFLYNET-II -

Liste de présence

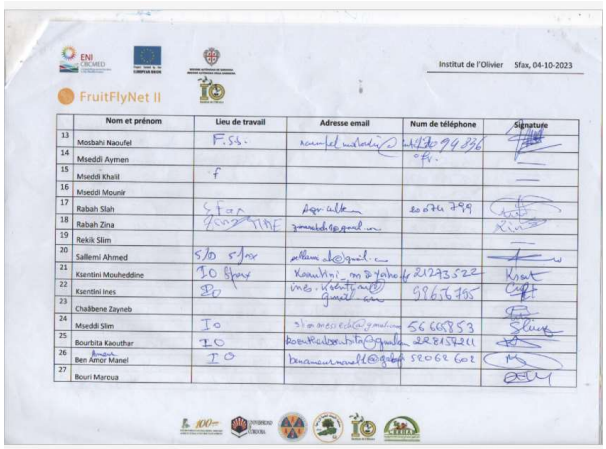
	Nom et prénom	Lieu de travail	Adresse email	Num de téléphone	Signature
1	Ameri Mohamed	CRDA Sfax			
2	Ben Maktouf Nahed				
3	Ben Mohamed Hayet	ARIA Sfax		50076890	
4	Bensalah Jamel	Agriculteur		23524137	
5	Boukhriss Maher	FSS		97670865	
6	Chaabouni Mahdi	Indp			
7	Charfi Abdelwaheb				
8	Ennouri Ismail	ENIS		98795260	
9	Fakhfakh Sami	Agriculteur			
10	Harrabi Houwaida	CRDA Sfax		27697747	
11	Hassini Houda				
12	Mdhaffar Afef	ENIS		93616111	



Institut de l'Olivier Sfax, 04-10-2023

FruitFlyNet II

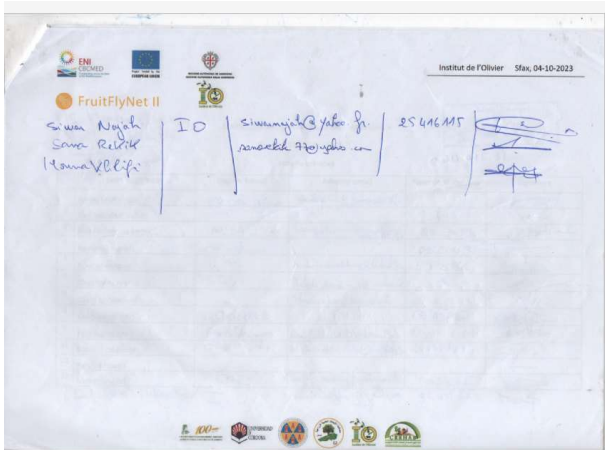
	Nom et prénom	Lieu de travail	Adresse email	Num de téléphone	Signature
13	Mosbahi Naoufel	F.SS.			
14	Mseddi Aymen				
15	Mseddi Khalil	f			
16	Mseddi Mounir				
17	Rabah Slah	Sfax		20674799	
18	Rabah Zina	Sfax			
19	Rekik Slim				
20	Sallemi Ahmed	S/D S/Mx			
21	Ksentini Mouheddine	IO Sfax		21273522	
22	Ksentini Ines	IO		99675795	
23	Chaâbene Zayneb				
24	Mseddi Slim	IO		56668853	
25	Bourbita Kaouthar	IO		22815721	
26	Ben Amor Manel	IO		58062602	
27	Bouri Maroua				



Institut de l'Olivier Sfax, 04-10-2023

FruitFlyNet II

	Nom et prénom	Lieu de travail	Adresse email	Num de téléphone	Signature
13	Mosbahi Naoufel	F.SS.			
14	Mseddi Aymen				
15	Mseddi Khalil	f			
16	Mseddi Mounir				
17	Rabah Slah	Sfax		20674799	
18	Rabah Zina	Sfax			
19	Rekik Slim				
20	Sallemi Ahmed	S/D S/Mx			
21	Ksentini Mouheddine	IO Sfax		21273522	
22	Ksentini Ines	IO		99675795	
23	Chaâbene Zayneb				
24	Mseddi Slim	IO		56668853	
25	Bourbita Kaouthar	IO		22815721	
26	Ben Amor Manel	IO		58062602	
27	Bouri Maroua				

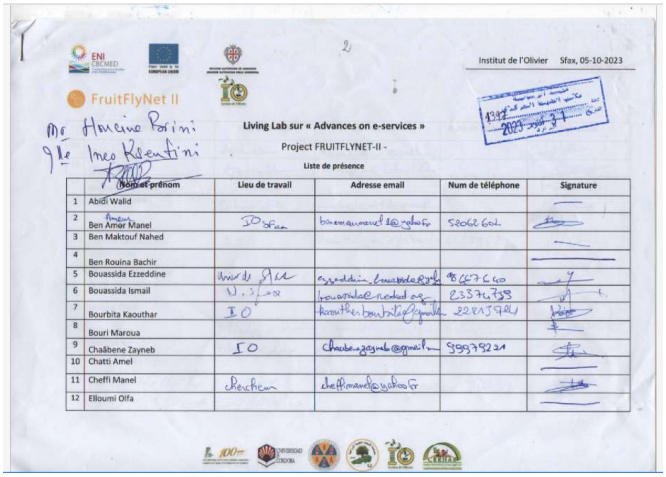


Institut de l'Olivier Sfax, 04-10-2023

FruitFlyNet II

Siwar Najah	IO		25446115	
Sana Rekik				
Nawal Ellefi				

2nd demonstration day (October 5th, 2023) presence list.


Institut de l'Olivier Sfax, 05-10-2023

FruitFlyNet II

Living Lab sur « Advances on e-services »

Project FRUITFLYNET-II -

Liste de présence

	Nom et prénom	Lieu de travail	Adresse email	Num de téléphone	Signature
1	Abidi Walid				
2	Ben Amor Manel	SO Sfax		52062601	
3	Ben Maktouf Nahed				
4	Ben Rouina Bachir				
5	Bouassida Ezzeddine				
6	Bouassida Ismail			23374738	
7	Bourbita Kaouthar	IO		22813582	
8	Bouri Maroua				
9	Chaâbene Zayneb	IO		99379221	
10	Chatti Amel				
11	Cheffi Manel				
12	Elloumi Olfa				


Institut de l'Olivier Sfax, 05-10-2023

FruitFlyNet II

	Nom et prénom	Lieu de travail	Adresse email	Num de téléphone	Signature
13	Ellouze Rakia				
14	Ellouze Souhir				
15	Gabbari Mabrouka				
16	Ghanmi Mouna				
17	Ksentini Ines				
18	Ksentini Mouheddine	IO.		21273522	
19	Makni Ikram				
20	Masmoudi Abdelkader				
21	Moussa Ahmed				
22	Mseddi Khalil				
23	Mseddi Slim			56665853	
24	Omri Sihem				
25	Trigui Ameni				
26	Leila Hachicha	Sfax		99444915	
27					


Institut de l'Olivier Sfax, 05-10-2023

FruitFlyNet II

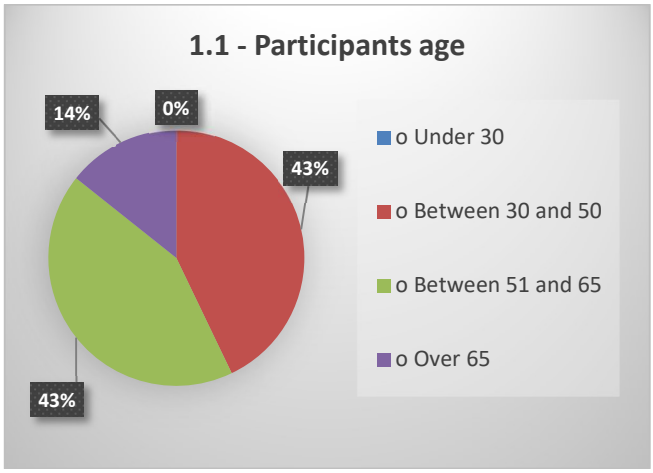
	Nom et prénom	Lieu de travail	Adresse email	Num de téléphone	Signature
13	Ellouze Rakia				
14	Ellouze Souhir				
15	Gabbari Mabrouka				
16	Ghanmi Mouna				
17	Ksentini Ines				
18	Ksentini Mouheddine	IO.		21273522	
19	Makni Ikram				
20	Masmoudi Abdelkader				
21	Moussa Ahmed				
22	Mseddi Khalil				
23	Mseddi Slim			56665853	
24	Omri Sihem				
25	Trigui Ameni				
26	Leila Hachicha	Sfax		99444915	
27					

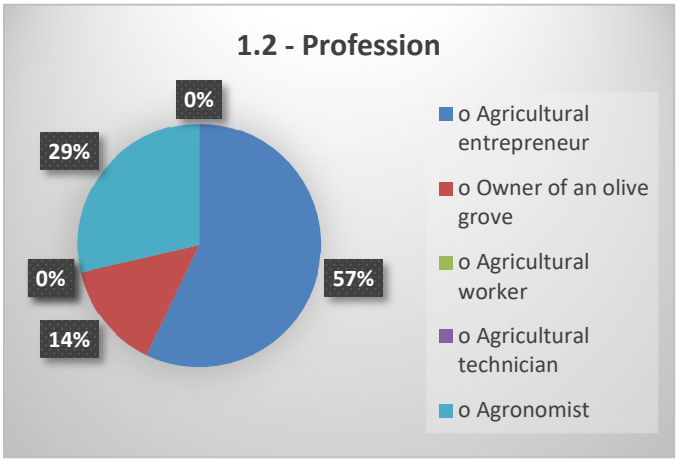

Institut de l'Olivier Sfax, 05-10-2023

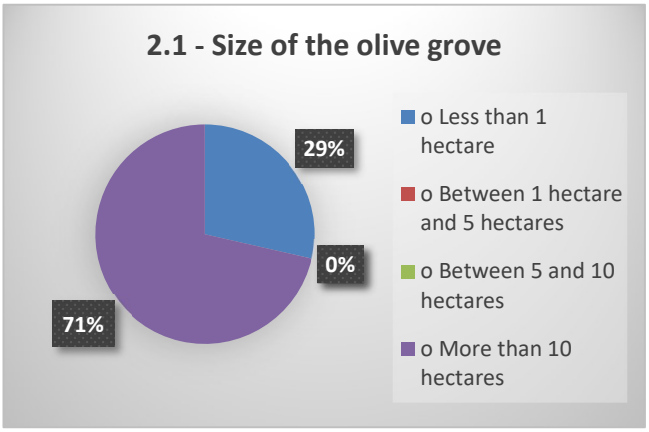
FruitFlyNet II

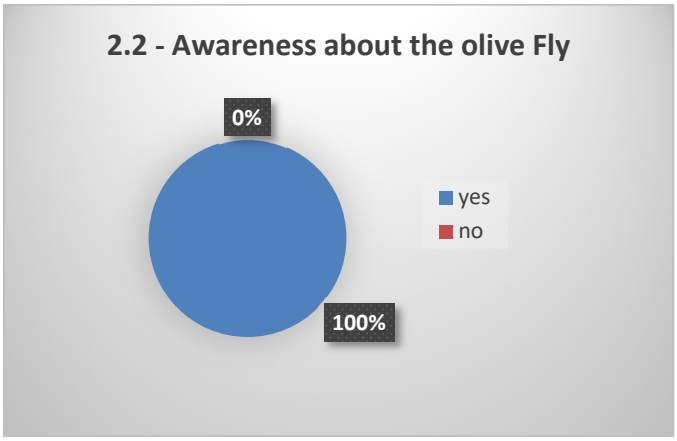
28	Regaya Mariem				
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					

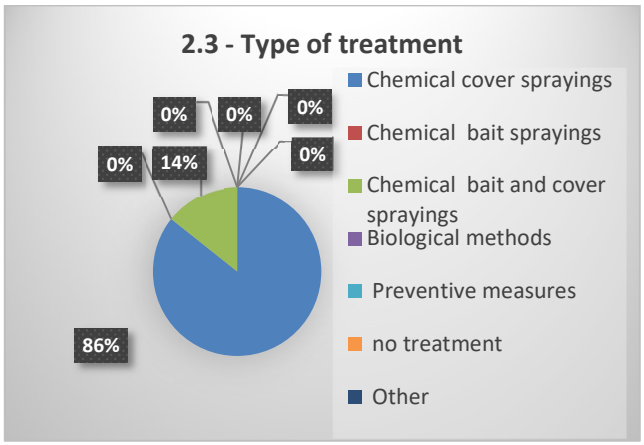
Figure 2: *Presentation list. Two groups, one per day and per Living Lab with 40 and 34 participants, respectively.*

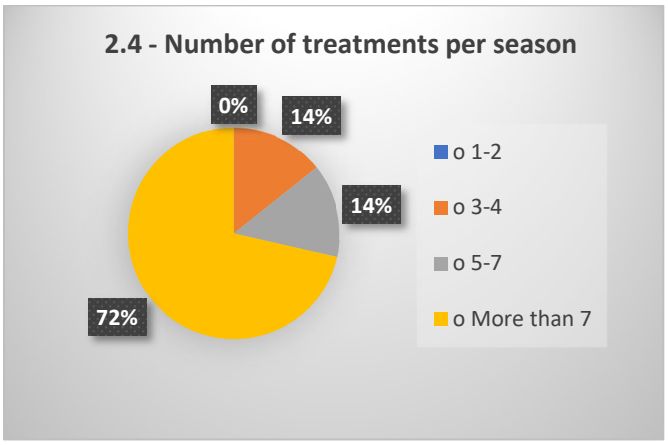

1.1 - Participants age
14%
0%
43%
43%
o Under 30
o Between 30 and 50
o Between 51 and 65
o Over 65


1.2 - Profession
0%
29%
0%
14%
57%
o Agricultural entrepreneur
o Owner of an olive grove
o Agricultural worker
o Agricultural technician
o Agronomist

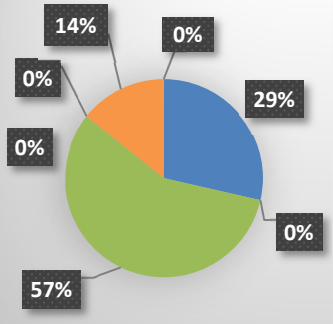

2.1 - Size of the olive grove
29%
0%
71%
o Less than 1 hectare
o Between 1 hectare and 5 hectares
o Between 5 and 10 hectares
o More than 10 hectares


2.2 - Awareness about the olive Fly
0%
100%
yes
no


2.3 - Type of treatment
0%
0%
0%
0%
0%
14%
86%
Chemical cover sprayings
Chemical bait sprayings
Chemical bait and cover sprayings
Biological methods
Preventive measures
no treatment
Other

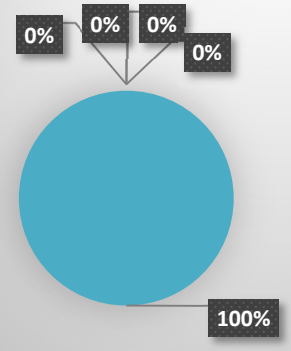

2.4 - Number of treatments per season
0%
14%
14%
72%
o 1-2
o 3-4
o 5-7
o More than 7

2.5 - Management techniques



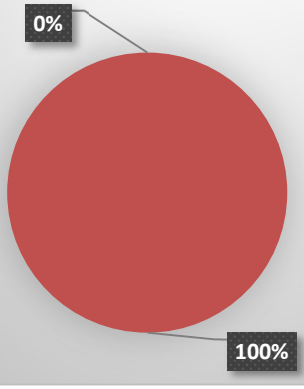
- Visual inspection of the drupes
- Use of traditional traps
- Consultation with an expert
- Consultation with the local pesticide dealer
- Regional or local warning reports of infestations
- No specific method
- Other

2.6 -Williness to change management method



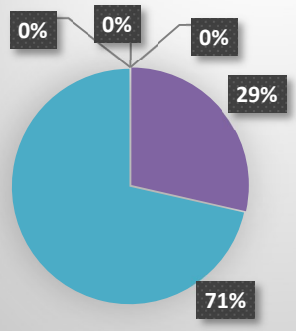
- no change
- possible
- slight change
- moderate change
- definitely yes

3.1 - Awareness about the existence of e-traps



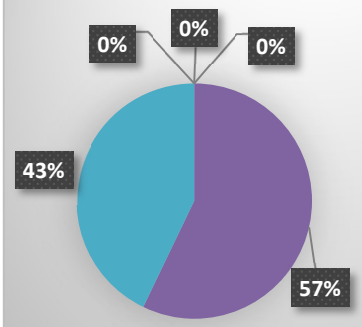
- yes
- no

3.2 - e-trap contribution



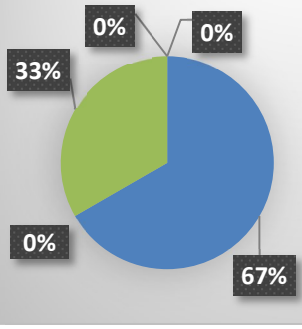
- no contribution
- slight contribution
- moderate contribution

3.3 E-trap management improvement

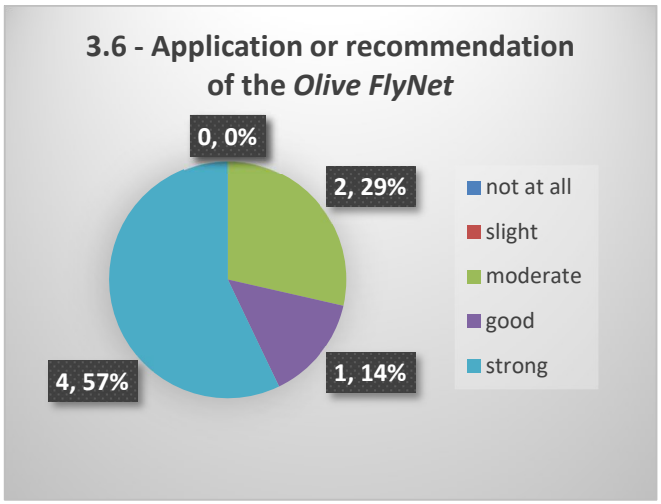


- no improvement
- slight improvement
- moderate improvement
- good improvement
- high improvement

3.4 - Most information System for the *OliveflyNet*



- Digitization of the olive grove
- Adult monitoring
- Infestation monitoring
- Decision Support System for insecticide treatment
- Traceability of insecticide treatment carried out.



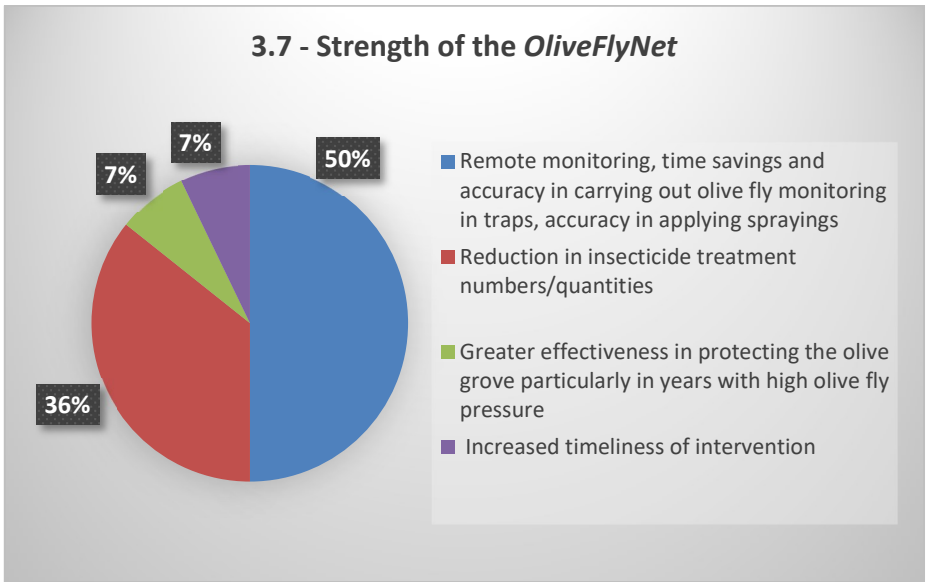


Figure 3: *: Responses obtained from the questionnaire*

Photo 1: *Living labs demonstration participants in site visit.*

Photo 2: *Living labs demonstration participants in site visit.*

Photo 3: *The drone tests.*

Photo 4: *The technical team presents the use of drones in OliveFlyNet prototype.*

11. **DEMO-12:** *OliveFlyNet* prototype demonstration in Larino, Molise, Italy

October 7th, 2023, University of Molise (UNIMOL-P02)

Demo Elements

Organizing Partner: P02 (UNIMOL)
Event Name: ***Oliveflynet prototype demonstration in Larino, Molise, Italy***
Event Date: 7 October 2023
Agenda: Figure 1
Speakers: Professor Andrea Sciarretta, Filippo De Curtis, Marco Colacci
List/No of participants: Figure 12/19 (producers/farmers, researchers).
Physical location/ Line: Zeoli farm, Larino. Molise, Italy.
URL: https://www2.unimol.it/blog/2023/10/03/difesa-degli-oliveti-dalla-mosca-dellolivo-unimol-unico-partner-italiano-del-progetto-internazionale/
Brief Description*:* This demonstration took place at the Zeoli farm, located in Larino (Molise), composed by an olive grove and an oil mill, where WP4 activities have implemented for assessing the *OliveFlyNet* prototype system. The main objective of the demonstration was to give a practical example of the functioning of the prototype in the field and allow participants to assess the system directly. The demonstration dedicated to olive farmers, oil mill owners and agronomist of the olive sector. Nineteen (19) participants attended the event (Figure 2).
Associate Prof. Andrea Sciarretta briefly introduced the project *FruitFlyNet-ii* and the *OliveFlyNet* Location Aware System (LAS), then the participants moved into the olive groove for the demonstration of the system in the field.
Specific components of the prototype (e-trap functioning, semiautomatic counting of fly catches, DSS outputs, weather data consultation, risk maps) were run and tested by the participants.
After returning into the meeting hall, a questionnaire consisting of 19 questions was provided to the participants, who filled them in anonymous way, split into three parts. The first slot was composed by questions about their professional information, the second by queries about the dimension and management of their olive groves and the third about the use of *OliveFlyNet* in IPM system and opinions about the project concluded. The compiled tests were 17 overall. The results are shown in the Figure 3.
Then, a dissemination event took place, with interventions from UNIMOL staff, who made three technical presentations concerning topics closely related to the project:
Dr Marco Colacci: Smart Agriculture
Associate Prof. Andrea Sciarretta: New guidelines on olive fly monitoring and control
Prof Filippo De Curtis: Sustainable protection of the olive crop
A participated discussion followed, with questions related to the illustrated topics.

Presentations: *P02_07.10.2023_Sciarretta.pdf.*

***OliveFlyNet-ii* questionnaire:**

1.1) Age:

- o Under 30
- o Between 30 and 50
- o Between 51 and 65
- o Over 65

1.2) Profession (several options can be selected)

- o Agricultural entrepreneur
- o Owner of an olive grove
- o Agricultural worker
- o Agricultural technician
- o Agronomist
- o Olive mill owner
- o Other _____

PART 2 (to be filled out only if you are an olive grove owner or if you are responsible for an olive grove)

2.1) What is the size of your olive grove?

- o Less than 1 hectare
- o Between 1 hectare and 5 hectares
- o Between 5 and 10 hectares
- o More than 10 hectares

2.2) Are you aware of the olive fruit fly problem in your area?

- o Yes
- o No

2.3) What types of treatments do you currently use to control the olive fly?

- o Chemical pesticides – cover sprayings
- o Chemical pesticides – bait sprayings
- o Chemical pesticides – bait and cover sprayings
- o Biological methods
- o Preventive measures – mass trapping, dusts etc
- o I do not use any treatment
- o Other (specify):_____

2.4) On average how many treatments do you carry out against the olive fly in a season?

- o 1-2
- o 3-4
- o 5-7
- o More than 7

2.5) How do you decide when to apply an olive fly management technique?

- o Visual inspection of the drupes
- o Use of traditional traps
- o Consultation with an expert
- o Consultation with the local pesticide dealer

o Regional or local warning reports of infestations
o No specific method
o Other (specify):_____

2.6) Would you be willing to change or supplement your current method of managing olive fly infestation? (tick answer, 0 no, would not change - 5 yes, definitely)

0 1 2 3 4 5

PART 3

3.1) Were you already aware of the existence of electronic traps and computer systems for pest management in agriculture?

o Yes
o No

If Yes, describe shortly:

3.2) Do you think the electronic traps can improve olive fly monitoring?
(tick answer, 0 no contribution - 5 high contribution)

0 1 2 3 4 5

3.3) Do you think that the *OliveFlyNet* system can contribute to improve olive fly management in your olive grove?
(tick answer, 0 no contribution - 5 high contribution)

0 1 2 3 4 5

3.4) Which of the following services do you think would be most important in the *OliveFlyNet* information system?

o Digitization of the olive grove
o Adult monitoring
o Infestation monitoring
o Decision Support System for insecticide treatment
o Traceability of insecticide treatment carried out.

3.5) Would you apply or recommend the use of the *OliveFlyNet* system?
(please tick the answer, 0 definitely no - 5 definitely yes)

0 1 2 3 4 5

3.6) What do you think are the strengths of the *OliveFlyNet* system?
(choose the two answers you think are most important)

o Remote monitoring, time savings and accuracy in carrying out olive fly monitoring in traps, accuracy in applying sprayings
o Reduction in insecticide treatment numbers/quantities
o Greater effectiveness in protecting the olive grove particularly in years with high olive fly pressure
o Increased timeliness of intervention

3.7) What do you think the limitations of the *OliveFlyNet* system might be?
(choose the two answers you think are most important)

o Difficulty of installing the e-traps in the field
o Difficulty in using the system in the field
o Lack of confidence in the computer system
o Difficulty in changing traditional approaches on the side of the farmer

3.8) How do you think the *OliveFlyNet* system could be improved to meet your needs?

Analysis and Results: **Figure 3**
In response to the participants' questionnaires the results obtained from the analysis summarized as shown in the **Figure 3**.
Slot 1
Through the analysis of the first slot of questions it emerged that the engaged stakeholder group was composed by 17 people, with an average age from 30 to 50 years old (the 47%), followed by people over 65 (29%) and people with an average age 50 to 65 years (24%).
About the profession, people had the possibility to mark multiple answers. Most of the present were Agricultural entrepreneur (53%), followed by Owners of olive groves (35%) and Agronomists (29%).

Slot 2
The first question of the second part of the test was about the dimension of them olive grove. The 41% of the olive groves has an extension by 1 to 5 hectares, followed by groves less than 1 ha (24%), more than 10 ha (18%) and 5-10 ha (12%). The next question was related to knowledge about the olive fly problem in the area, and the 100% of the sample knew the problem. In the third, it was asked which methods have been used for the olive fly management. The 29% use biological control, the 24% chemical pesticides (cover sprayings), the same % does not use any treatment. The 53% said they do 1-2 treatments in the year, the 24% 3-4 treatments. The remaining didn't treat the olive grove this year. The following question was how people decide when apply an olive fly management technique. The 46% use traditional traps and the 35% does visual inspection of the drupes. The 18% require a consultation with an expert. The last question of this slot was about the availability to change their own management model for olive fly. The 41% would change their model; the 6% absolutely wouldn't change.

Slot3
The third slot was about the *OliveFlyNet* and the project ***Fruitflynet-ii***. The first question was about the knowledge of e-traps for monitoring pests in agriculture. The 79% had not knowledge about this type of traps. The following was about the possibility to improving the monitory of olive fly using e-traps using a scale by 0 to 5 (0 no contribution-5 high contribution). All the stakeholders think that the use of this type of traps might contribute at monitoring. The 53% rated 4 and the 41% rated 5. Then, it was asked if *OliveFlyNet* might improve olive fly management in their olive groves, using a scale 0 to 5. Most of the questioners in the sample think that it might be a help in the management of the olive grove. The 53% rated 4 and the 35% rated 5. Only 6 % thinks that the system can't help him in the management. For the people, the most important service in the *OliveFlyNet* is the remote adult monitoring (41%), followed by the digitization of the olive grove (29%).

It was then asked if people would apply or recommend the use of *OliveFlyNet* system using a scale 0 to 5. The approval to this question was high, with the 47% rated 5 and the 18% rated 4. In this case too, one person (6%) rated 0.
The 53% thinks that the most important point of the system is the possibility to do a remote monitoring, time savings

and accuracy in carrying out olive fly monitoring in traps, accuracy in applying sprayings. For another 47% the system is important to reduce insecticide treatments.
For about 41%, it might be difficult to change traditional approaches on the side of the farmer and for 26% it might be difficult use the system in the field. At last, it was asked how to improve *OliveFlyNet* system. Only three people answered and asked for better dissemination, optimized dimensions, and easy assembly.
The compiled questionnaires are in the attached file.

18:00- 19:00 Dissemination event
Then, a dissemination event took place, with interventions from UNIMOL staff, who made three technical presentations concerning topics closely related to the project:
Dr Marco Colacci: Smart Agriculture
Prof Andrea Sciarretta: New guidelines on olive fly monitoring and control.
Prof Filippo De Curtis: Sustainable protection of the olive crop.
A participated discussion followed, with questions related to the illustrated topics.

The filled questionnaires are in the attached files.
P02_07.10.2023_AnsQuest_1-17.pdf

Figures/Photos:

Evento organizzato da:
Dipartimento Agricoltura, Ambiente e Alimenti
Università degli Studi del Molise

Controllo della mosca dell'olivo:
Dimostrazione in campo
del sistema informatico Oliveflynet

Incontro tecnico-divulgativo organizzato a conclusione del progetto europeo FruitFlyNet-II in cui verrà presentato un sistema informatico e una trappola elettronica per il monitoraggio e il controllo della mosca dell'olivo

7 OTTOBRE 2023
h. 16:30 – 19:00
AZIENDA AGRICOLA ZEOLI
CONTRADA CARPINETO, N.25
LARINO (CB)

Programma:
Inizio h.16:30.

Dimostrazione in campo del sistema informatico Oliveflynet

A seguire, discussione sulla difesa dell'oliveto. Relatori:
- Prof. Andrea Sciarretta – Dott. Marco Colacci Prof. Filippo De Curtis

Al termine buffet di saluto

Figure 1: *The agenda*

ENI CBCMED Cooperating across borders in the Mediterranean
Programme funded by the EUROPEAN UNION
REGIONE AUTÒNOMA DE SARDIGNA REGIONE AUTONOMA DELLA SARDEGNA
FruitFlyNet II

DIMOSTRAZIONE IN CAMPO

Dimostrazione in campo del sistema informatico OliveFlyNet

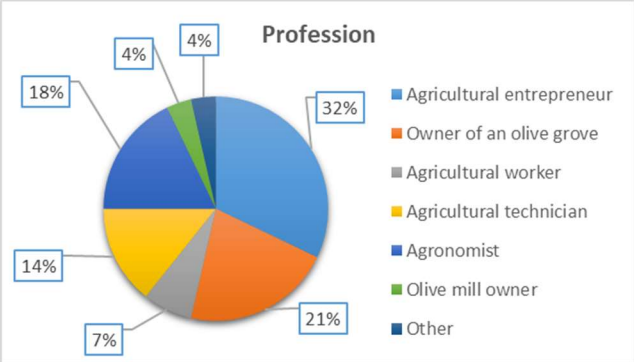
Sabato 7 ottobre 2023 ore 16.30
Azienda Agricola Zeoli, Contrada Carpineto 25 – Comune di Larino (Campobasso)

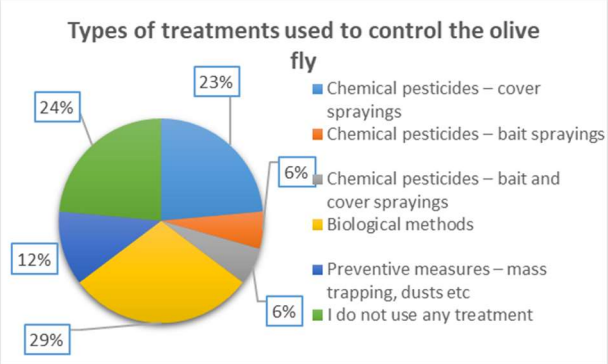
ELENCO PARTECIPANTI

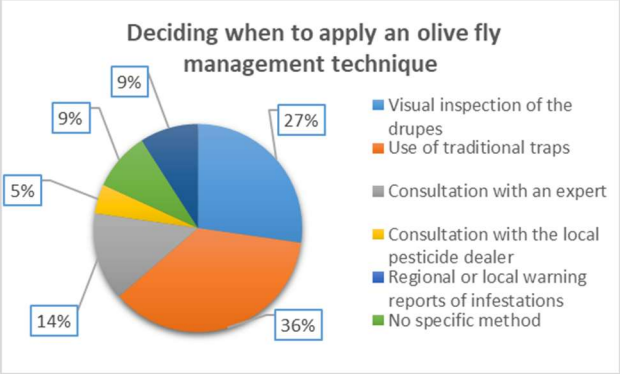
NOME	PROFESSIONE	CONTATTI	FIRMA
CENICCOLA MICHELE	AGRONOMO	3463584606	
CENICCOLA Michele	AGRONOMO	3475895434	
D'AGNONE MARCO	SERRAMENTISTA	333 6712682	
IANNATA FRANCESCO	DIMOSTRATORE	328 6282580	
NICOLA RUSSO	AGRICOLTORE	3806443226	
ANDRIA G.	DIMOSTRATORE	3287370003	
DI PAOLO DARIO	AGRICOLTORE	347/6465183	
Ricci Paolo	AGRICOLTORE	3939262364	
SPINA GIACINTO	AGRICOLTORE	3470905479	
IANNA DOMENICO	TECNOLOGA	3391448371	
BONELLA TOMMASO	AGRONOMO	3391448391	
RICCI MARIO	AGRICOLTORE	3939262364	
VIZZARRI FRANCESCO	PERITO AGRARIO	3353382782	
DI PAOLO DARIO	AGRICOLTORE	347/6465183	

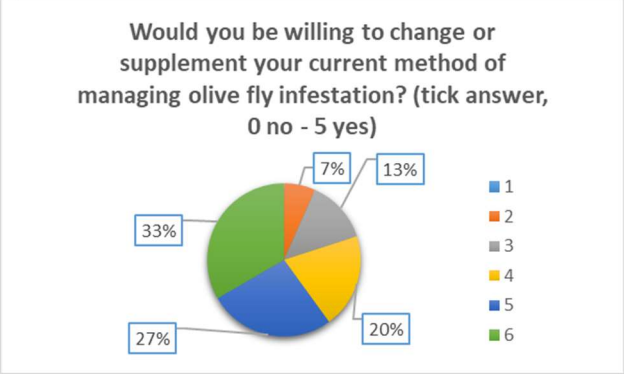
NOME	PROFESSIONE	CONTATTI	FIRMA
ANNA MARIA	IMPRENDITORE	3486001595	
DOMENICO ZEOLI	IMPRENDITORE	3887269728	
ANGELO CALABRESE	OPERAIO AGRICOLO		
MARCO COLACCI	RICERCATORE UNIVERSITARIO	MARCO.COLACCI@UNIMOL.IT	
PASQUALE TREMATERRA	PROFESSORE UNIMOL	TREMA@UNIMOL.IT	
FILIPPO DE CURTIS	UNIMOL	DECURTIS@UNIMOL.IT	
ANDREA SCIARRETTA	UNIMOL	SCIARRETTA@UNIMOL.IT	
ARMANDO AMORE	INTELLIGENCE	ARMANDO.AMORE@GMAIL.IT	

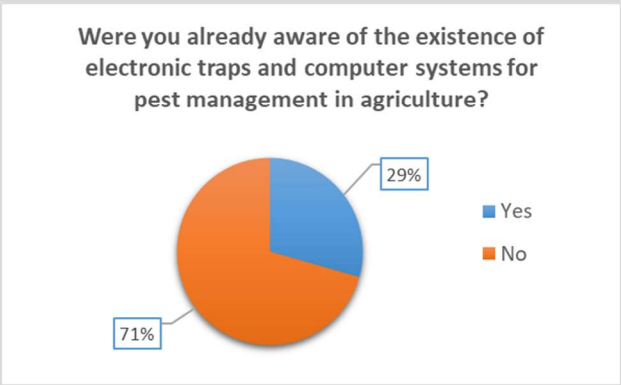
Figure 2: *The attendance's list.*

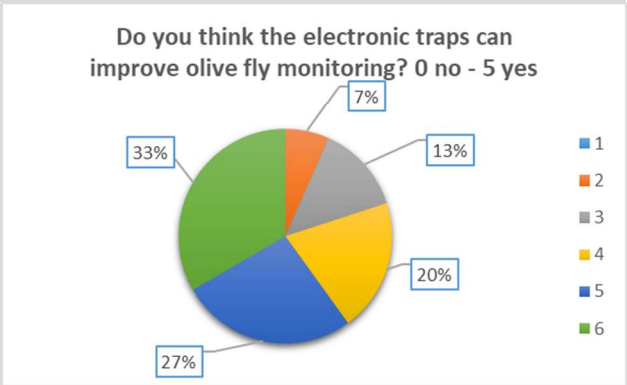

Profession
32%
21%
7%
14%
18%
4%
4%
Agricultural entrepreneur
Owner of an olive grove
Agricultural worker
Agricultural technician
Agronomist
Olive mill owner
Other


Types of treatments used to control the olive fly
23%
6%
6%
29%
12%
24%
Chemical pesticides – cover sprayings
Chemical pesticides – bait sprayings
Chemical pesticides – bait and cover sprayings
Biological methods
Preventive measures – mass trapping, dusts etc
I do not use any treatment


Deciding when to apply an olive fly management technique
27%
36%
14%
5%
9%
9%
Visual inspection of the drupes
Use of traditional traps
Consultation with an expert
Consultation with the local pesticide dealer
Regional or local warning reports of infestations
No specific method


Would you be willing to change or supplement your current method of managing olive fly infestation? (tick answer, 0 no - 5 yes)
7%
13%
33%
27%
20%
1
2
3
4
5
6


Were you already aware of the existence of electronic traps and computer systems for pest management in agriculture?
29%
71%
Yes
No


Do you think the electronic traps can improve olive fly monitoring? 0 no - 5 yes
7%
13%
33%
20%
27%
1
2
3
4
5
6

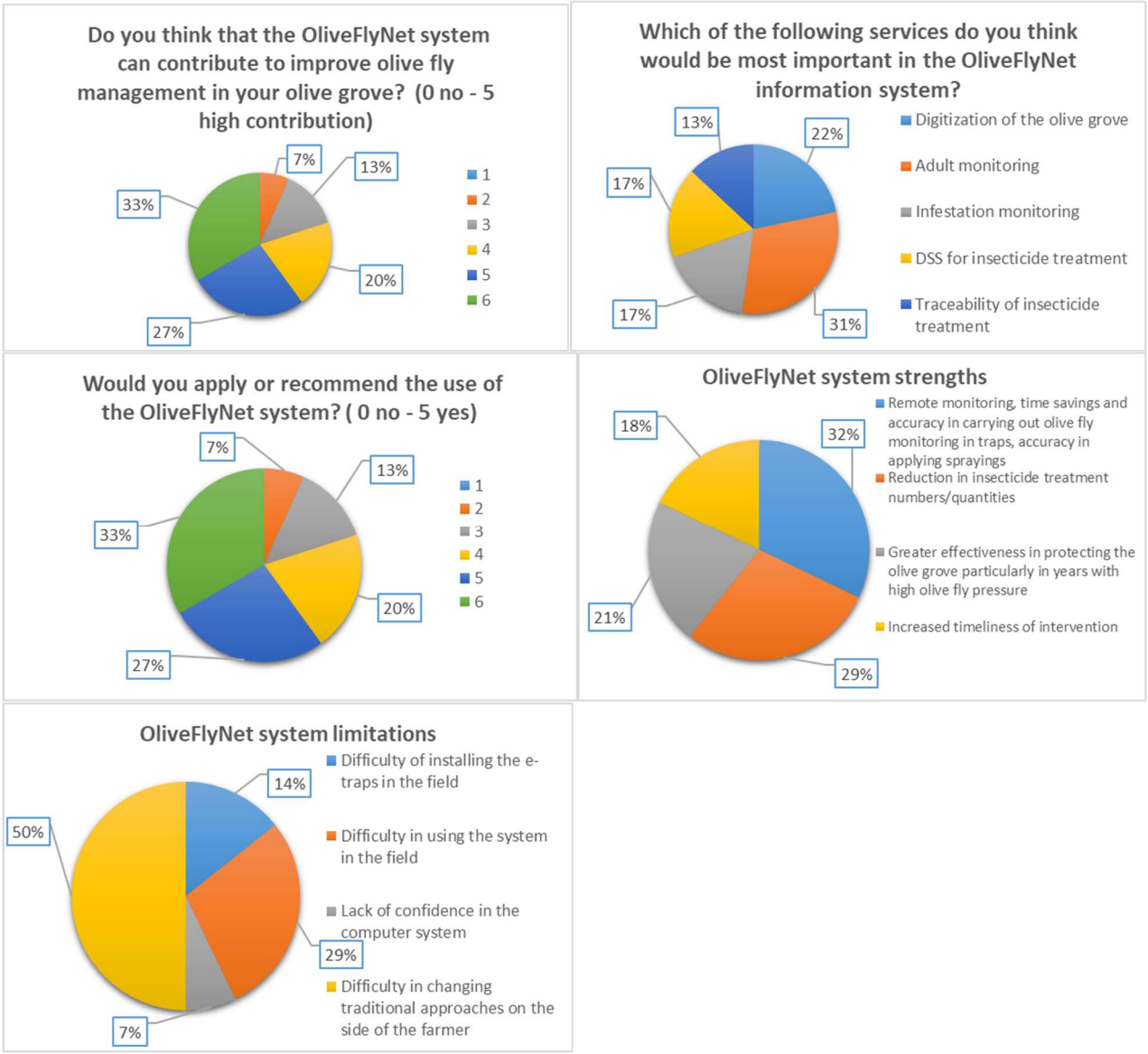


Figure 3: *Analysis of completed questionnaires.*

Photo 1: *Prof. Andrea Sciarretta is introducing the project and the prototype components before the field demonstration.*

Photos 2-3: *Two moments of OliveFlyNet's field demonstration*

12. **DEMO-13:** *FruitFlyNet-ii* in Spain presented in-field demonstration event by the University of Cordoba

October 9th, 2023, University of Cordoba (UCO-P01)

Demo Elements

Organizing Partner: P01 (UCO)
Event Name: ***FruitFlyNet-ii*** in Spain presented in-field demonstration event by the University of Cordoba
Event Date: 9 October 2023
Agenda: Figure 1
Speakers: Assistant Professor Meelad Yousef, Emilio Calvo Cerezo and Flora Moreno Alcaide
List/No of participants: No List/26 participants (Agricultural entrepreneur, Owner of an olive grove, Agronomist, Agricultural technician, producers/farmers, researchers).
Physical location/ Line: Field demonstration event in Antequera (Malaga). Andalusia, Spain
URL: https://www.enicbcmed.eu/oliveflynet-field-demonstration-event-university-cordoba-spain
Brief Description*: FruitFlyNet-ii*
On 9th October, in the framework of our ENI CBCMED Programme *FruitFlyNet-ii* of the, Assistant Prof. Meelad Yousef Yousef, together with Emilio Calvo Cerezo and Flora Moreno Alcaide, technical managers of the project in Spain, from the ETSIAM (Escuela Técnica Superior de Ingeniería Agronómica y de Montes) of the University of Córdoba; organised the second demonstration and dissemination event of the project to transmit our knowledge about the olive fly and the innovations that e-trap and e-services bring to its management to farmers, cooperatives, IPM industry and stakeholders.
First, Assistant Prof. Yousef explained why olive fruit fly *Bactrocera oleae* Rossi is the main pest for the olive crop and how is their lifecycle, which is fully adapted to the olive crop phenology. As consequence of this, the olive fly causes very costly damage to olive orchards.
Below, Flora Moreno shows the method for estimating the population of the olive fly, as explained in the IPM national guide. This includes the type and the number of traps, the olive fruit samplings, and the periodicity of the field visits. Innovations on the optimisation of the methods carried out by our team were also explained with details such as the effects of trap colours and size, the optimal number of traps per hectare and the influence on the beneficial populations. All these data are used to feed a Decision Support System (DSS), which indicates when a control action against the olive fly is necessary. In addition, different control methods were presented.
Emilio Calvo then lists the pros and the cons of the current olive fly monitoring systems and explains why a Location Aware System (LAS) is a needed improvement to increase the temporal and the spatial monitoring resolution. This LAS relies on 2 form, e-trap, and e-services. The e-trap, the electronic trap, is the key point for the semi-automatic or automatic olive fly recognition system, a stand-alone Internet of Things (IoT) device. E-services uses the data provided by the e-trap to obtain risk maps and treatment guidance maps for precision treatment. These objectives are achieved by the digitalization of the olive orchard, using GIS tools, and collecting field data, with a GPS tablet.
The event continued with an outdoor session in an olive orchard showing the use of the e-trap in the field and the GPS tablet to collect data. All the assistants expressed a great interest on the *FruitFlyNet-ii* project and its objectives

and made strong feedback.

Presentations: *Demo_09.10.2023_Yousef.pdf*
***FruitFlyNet-ii* questionnaire**

PART 1
1.1) Age:
- o Under 30
- o Between 30 and 50
- o Between 51 and 65
- o Over 65

1.2) Profession (several options can be selected)
- o Agricultural entrepreneur
- o Owner of an olive grove
- o Agricultural worker
- o Agricultural technician
- o Agronomist
- o Olive mill owner
- o Other _____

PART 2 (to be filled out only if you are an olive grove owner or if you are responsible for an olive grove)
2.1) What is the size of your olive grove?
- o Less than 1 hectare
- o Between 1 hectare and 5 hectares
- o Between 5 and 10 hectares
- o More than 10 hectares

2.2) Are you aware of the olive fruit fly problem in your area?
- o Yes
- o No

2.3) What types of treatments do you currently use to control the olive fly?
- o Chemical pesticides – cover sprayings.
- o Chemical pesticides – bait sprayings.
- o Chemical pesticides – bait and cover sprayings.
- o Biological methods
- o Preventive measures – mass trapping, dusts etc.
- o I do not use any treatment.
- o Other (specify):_____

2.4) On average how many treatments do you carry out against the olive fly in a season?
- o 1-2
- o 3-4
- o 5-7
- o More than 7

2.5) How do you decide when to apply an olive fly management technique?

- o Visual inspection of the drupes
- o Use of traditional traps
- o Consultation with an expert
- o Consultation with the local pesticide dealer
- o Regional or local warning reports of infestations
- o No specific method
- o Other (specify):_____

2.6) Would you be willing to change or supplement your current method of managing olive fly infestation? (tick answer, 0 no, would not change - 5 yes, definitely)

0 1 2 3 4 5

PART 3

3.1) Were you already aware of the existence of electronic traps and computer systems for pest management in agriculture?

- o Yes
- o No

If YES, describe shortly:

3.2) Do you think the electronic traps can improve olive fly monitoring?
(tick answer, 0 no contribution - 5 high contribution)

0 1 2 3 4 5

3.3) Do you think that the *OliveFlyNet* system can contribute to improve olive fly management in your olive grove?
(tick answer, 0 no contribution - 5 high contribution)

0 1 2 3 4 5

3.4) Which of the following services do you think would be most important in the *OliveFlyNet* information system?

- o Digitization of the olive grove
- o Adult monitoring
- o Infestation monitoring
- o Decision Support System for insecticide treatment
- o Traceability of insecticide treatment carried out.

3.5) Would you apply or recommend the use of the *OliveFlyNet* system?
(please tick the answer, 0 definitely no - 5 definitely yes)

0 1 2 3 4 5

3.6) What do you think are the strengths of the *OliveFlyNet* system?
(choose the two answers you think are most important)

- o Remote monitoring, time savings and accuracy in carrying out olive fly monitoring in traps, accuracy in applying sprayings
- o Reduction in insecticide treatment numbers/quantities
- o Greater effectiveness in protecting the olive grove particularly in years with high olive fly pressure
- o Increased timeliness of intervention

3.8) What do you think the limitations of the *OliveFlyNet* system might be?
(choose the two answers you think are most important)

- o Difficulty of installing the e-traps in the field
- o Difficulty in using the system in the field
- o Lack of confidence in the computer system
- o Difficulty in changing traditional approaches on the side of the farmer

3.9) How do you think the *OliveFlyNet* system could be improved to meet your needs?
3.10) Other comments:

Analysis and Results: **Figure 2**
In response to the participants' questionnaires the results obtained from the analysis (**Figure 2)** many were aware of the problem of the olive fruit fly in the sector and used various methods for its control. In relation to electronic traps, they were already aware of the existence of others used on other insects.
Although it seemed to them a great advance in the introduction of 4.0 technology to carry out an optimal monitoring of the population and thus carry out a correct decision making, there were also discrepancies in terms of the cost of the trap and its reliability, having to improve its optimization for the complete automation of the trap.

The filled questionnaires are in the attached file: P01_09.10.2023_AnsQuest.pdf.

Figures/Photos:

Figure 1: *Agenda of the Demonstration*

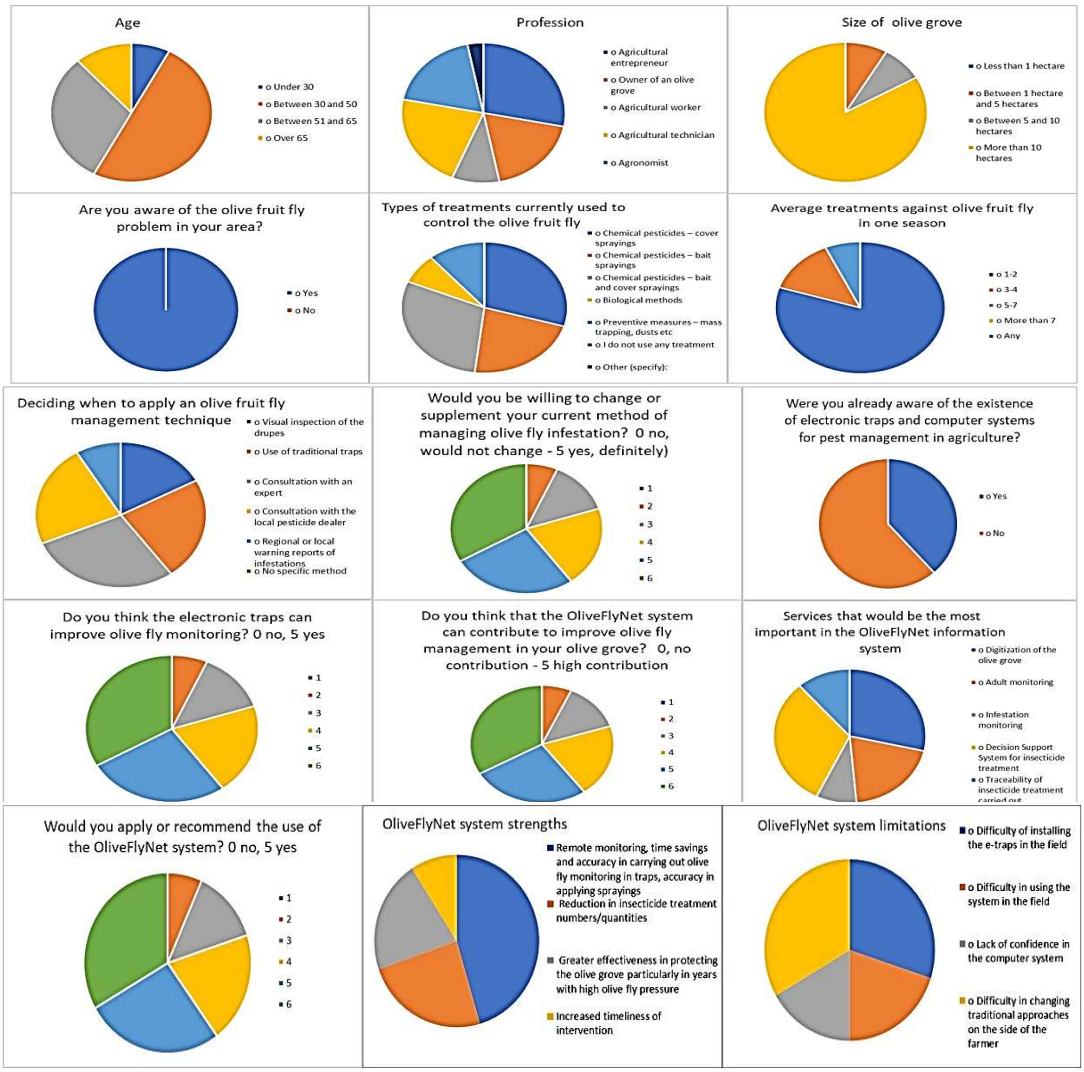


Figure 2*: Responses obtained to this questionnaire*

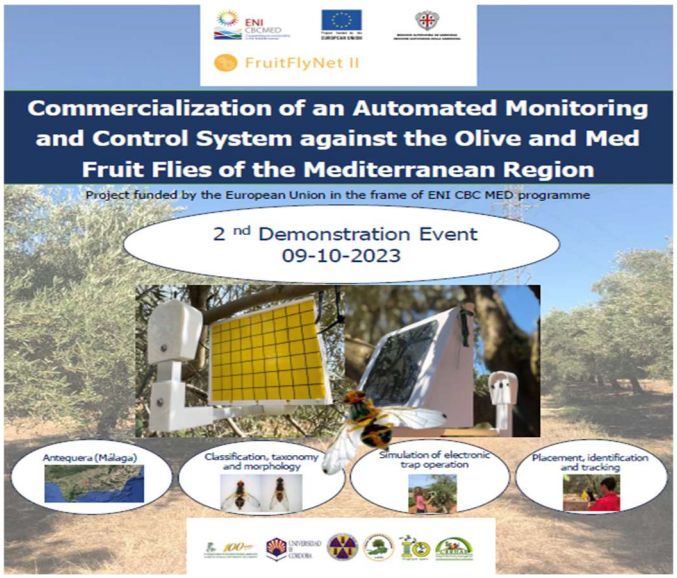


Photo 1*: Publicity 2nd Demonstration Event*

Photo 2: *Field demonstration of the electronic trap to participants*

Photo 3: An overview of the *second demonstration event*

Photo 4: *Assistant Prof. Yousef explains the various aspects of the olive fruit fly*

Photo 5: *Explanation the LAS olive fruit fly monitoring and control method in Spain*

Photo 6: *Emilio's and Flora's explanation to the attendee's about the different aspects of the electronic trap*

13. **DEMO-14:** *FruitFlyNet-ii* organised demonstration event for the *OliveFruitFly* in Metamorphosi, Laconia, Greece

October 12th, 2023, Agricultural University of Athens (AUA-BEN)

Demo Elements

Organizing Partner: BEN (AUA)
Event Name: *FruitFlyNet-ii organised demonstration event for the OliveFruitFly in Metamorphosi, Laconia, Greece*
Event Date: 12th October 2023
Agenda: Figure 1
Speakers: Prof. Theodore Tsiligiridis, Associate Prof. Dionysios Perdikis, Dr. Costas Pontikakos.
List/No of participants: 38 (producers/farmers, researchers): Figure 2
Physical location/ Line: Metamprphosi, Moaoi, South Peloponnesus, Greece.
URL: FruitFlyNet-ii organised demonstration event for OliveFruitFly in Metamorphosi, Lakonia, Greece | ENI CBC Med

Brief Description*:*

On **Thursday, October 12, 2023**, a demonstration event of the ***OliveFlyNet*** organized by the **Agricultural University of Athens (AUA)**took place in the village of **Metamorphosi in Lakonia, South Peloponnese**, where the respective wide area site of the beneficiary is located. The main aims of the demonstration were to present the achievements and the new tools produced under of the ***OliveFlyNet***, to describe the benefits they bring to the current practices, demonstrate their functionalities and at the end to open the discussion with the stakeholders, clarify any remarks and collect their opinions attitudes and criticism, also by asking them to fill in a specifically designed questionnaire. The demonstration event started by a welcome speech of the president of the local cooperative of farmers, describing the problems they face in the control of olive fruit fly, which is a main threat to their production and described what they expect from the new system. The members of the team of ***FruitFlyNet-ii*** project welcomed the participants and all stressed the high attendance indicating the high interest for the new developments by the farmers. The project coordinator **Professor Theodore Tsiligiridis** explained the frame and the aims of the ***FruitFlyNet-ii*** project and then presented the e-trap for the ***OliveFlyNet***. The benefits of the use of the e-trap in comparison to the limitations of the conventional traps, such as the remote monitoring, the precision in counting the pest captures and the timely collection of field data. The main components of the e-trap were shown to the stakeholders and their functions explained. Then, **Professor Dionysios Perdikis**, technical manager of the project, explained how the decision systems developed in the ***OliveFlyNet*** use the data from the traps and other data (infestation, phenological stage of the fruits, climatic data) to decide when, where, how and what to be sprayed in the field according to **Integrated Pest Management (IPM)** rules for applying sprayings against the olive fruit fly. Finally, **Dr Costas Pontikakos** presented the e-services of the ***OliveFlyNet*** related to the field digitization, the geodatabase, the remote and in-field data collection, the production of pest risk maps, the guidance for sprayings and the traceability of spraying actions using the modernized platform of ***OliveFlyNet*** and the 3D web mapping.
A vivid discussion followed with the feedback of many farmers to be positive saying that the new system can be really very helpful to them and congratulate the team for the innovative approaches developed. Comments also received

regarding possible difficulties for farmers to apply the system or about its likely high cost. In the audience also agricultural engineers and extension service personnel were present taking also place in the discussions and the other activities. Next, the in-field demonstration of the system functionalities took place, and the audience had the opportunity to use the GPS tablet to collect and upload by themselves trap and tree data through mobile GIS and to explore the e-trap. At the end the participants filled in the project questionnaire for the ***OliveFlyNet*** case. The questionnaire was prepared and elaborated with comments from all the partners to be used in all the demonstrations of the project. At the end, all participants expressed their gratitude for the demonstration and implementation of the project in their olive orchards and expressed willingness to continue with the current implementation of the system up to the harvesting time. They also expressed their interest to participate in the coming **Living Lab meeting** and be informed for further technical developments and the progress of the commercialization process.

Presentations:

Oral presentation of the Olive fly e-trap and its functionality by Prof. Theodore Tsiligiridis
BEN_12.10.2023_OliveFlyNet_Perdikis.pdf
BEN_12.10.2023_OliveFlyNet_Pontikakos.pdf
In-field demonstration

***OliveFlyNet-ii* questionnaire:**

1.1) Age:
- o Under 30
- o Between 30 and 50
- o Between 51 and 65
- o Over 65

1.2) Profession (several options can be selected)
- o Agricultural entrepreneur
- o Owner of an olive grove
- o Agricultural worker
- o Agricultural technician
- o Agronomist
- o Olive mill owner
- o Other _____

PART 2 (to be filled out only if you are an olive grove owner or if you are responsible for an olive grove)

2.1) What is the size of your olive grove?
- o Less than 1 hectare
- o Between 1 hectare and 5 hectares
- o Between 5 and 10 hectares
- o More than 10 hectares

2.2) Are you aware of the olive fruit fly problem in your area?
- o Yes
- o No

2.3) What types of treatments do you currently use to control the olive fly?

- o Chemical pesticides – cover sprayings
- o Chemical pesticides – bait sprayings
- o Chemical pesticides – bait and cover sprayings
- o Biological methods
- o Preventive measures – mass trapping, dusts etc
- o I do not use any treatment
- o Other (specify):_____

2.4) On average how many treatments do you carry out against the olive fly in a season?

- o 1-2
- o 3-4
- o 5-7
- o More than 7

2.5) How do you decide when to apply an olive fly management technique?

- o Visual inspection of the drupes
- o Use of traditional traps
- o Consultation with an expert
- o Consultation with the local pesticide dealer
- o Regional or local warning reports of infestations
- o No specific method
- o Other (specify):_____

2.6) Would you be willing to change or supplement your current method of managing olive fly infestation? (tick answer, 0 no, would not change - 5 yes, definitely)

0 1 2 3 4 5

PART 3

3.1) Were you already aware of the existence of electronic traps and computer systems for pest management in agriculture?

- o Yes
- o No

If Yes, describe shortly:

3.2) Do you think the electronic traps can improve olive fly monitoring?
(tick answer, 0 no contribution - 5 high contribution)

0 1 2 3 4 5

3.3) Do you think that the *OliveFlyNet* system can contribute to improve olive fly management in your olive grove?
(tick answer, 0 no contribution - 5 high contribution)

0 1 2 3 4 5

3.4) Which of the following services do you think would be most important in the *OliveFlyNet* information system?

- o Digitization of the olive grove
- o Adult monitoring
- o Infestation monitoring
- o Decision Support System for insecticide treatment

o Traceability of insecticide treatment carried out.

3.5) Would you apply or recommend the use of the *OliveFlyNet* system?
(please tick the answer, 0 definitely no - 5 definitely yes)

0 1 2 3 4 5

3.6) What do you think are the strengths of the *OliveFlyNet* system?
(choose the two answers you think are most important)

o Remote monitoring, time savings and accuracy in carrying out olive fly monitoring in traps, accuracy in applying sprayings
o Reduction in insecticide treatment numbers/quantities
o Greater effectiveness in protecting the olive grove particularly in years with high olive fly pressure
o Increased timeliness of intervention

3.7) What do you think the limitations of the *OliveFlyNet* system might be?
(choose the two answers you think are most important)

o Difficulty of installing the e-traps in the field
o Difficulty in using the system in the field
o Lack of confidence in the computer system
o Difficulty in changing traditional approaches on the side of the farmer

3.8) How do you think the *OliveFlyNet* system could be improved to meet your needs?

Analysis and Results: Figure 3
In response to the participants' questionnaires the results obtained from the analysis are presented in Figure 3**.**

The filled questionnaires are in the attached files.

BEN_12.10.2023_AnsQuest.pdf

Figures/Photos:

FruitFlyNet-ii
STR: B_A2.1_0043
ENI CBC MED

Agenda

of the *OliveFlyNet* Demonstration

October 12, 2023

Metamorfosi, Laconia, Greece

Agricultural University of Athens (BEN)

Thursday, October 12, 2023
Cultural Center, Metamorfosi, Laconia, Greece

18:00 - 18:05: Opening – Welcome address
18:05 - 18:15: The *OliveFlyNet* e-trap. *Prof. Theodore Tsiligiridis (BEN)*
18:15 - 18:25: The *OliveFlyNet* Decision Support Systems. *Prof. Dionysios Perdikis (BEN)*
18:25 - 18:35: The *OliveFlyNet* LAS e-services implementation. *Dr Costas Pontikakos (BEN)*
18:40 - 19:00: Demonstration - discussion
19:00: Closing

Figure 1: *Agenda an invitation of the Demonstration*

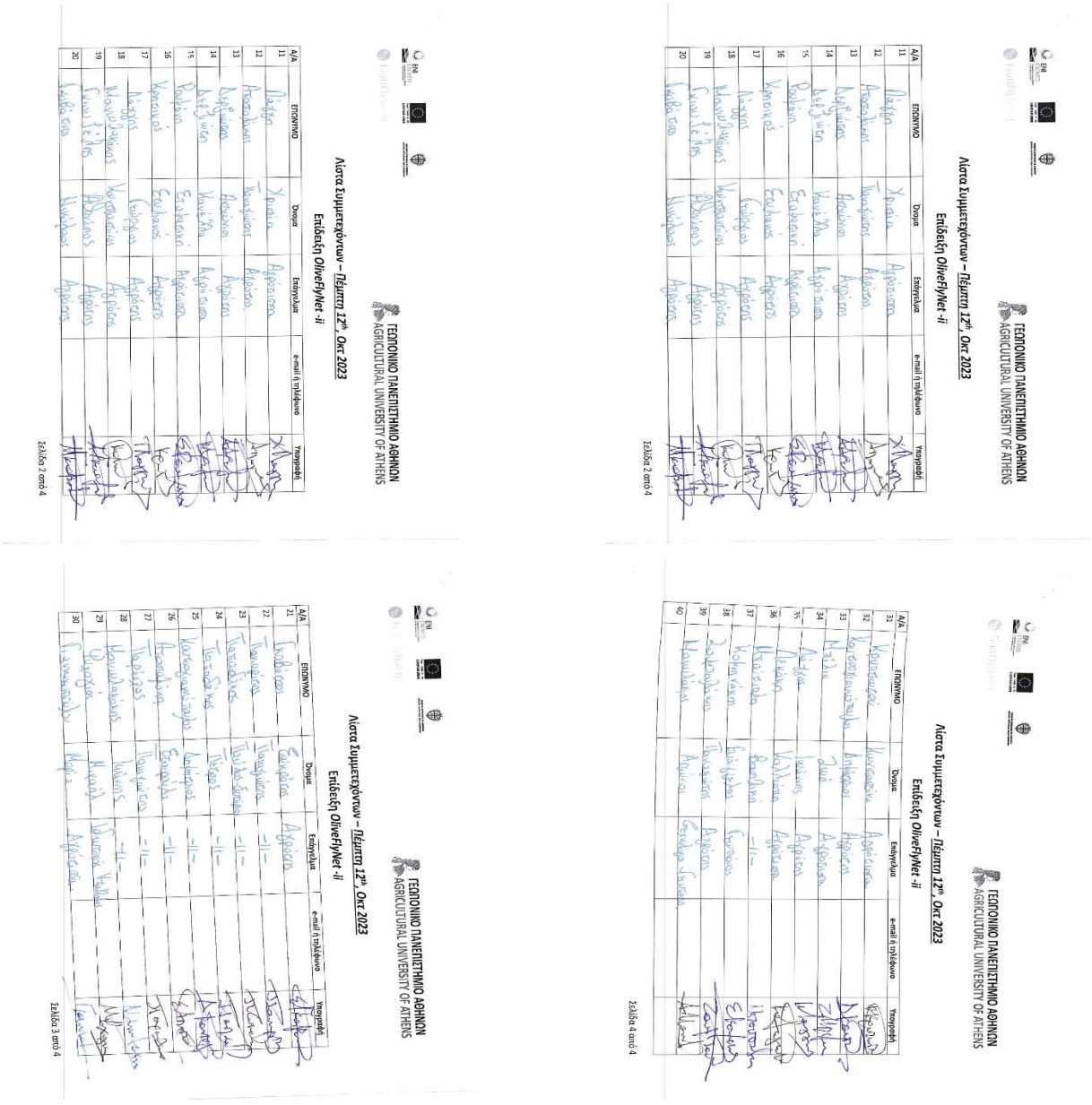
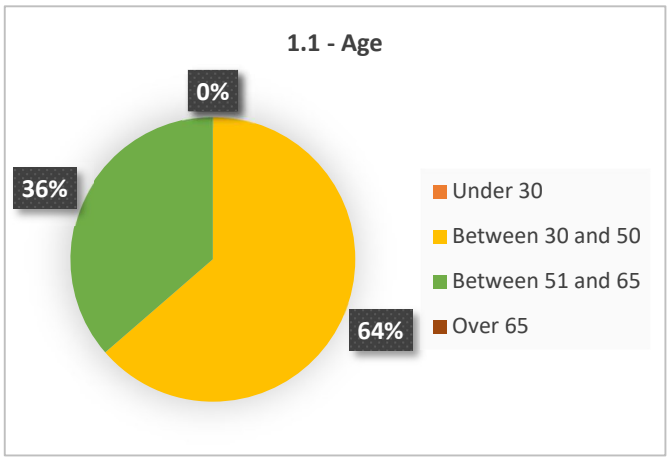
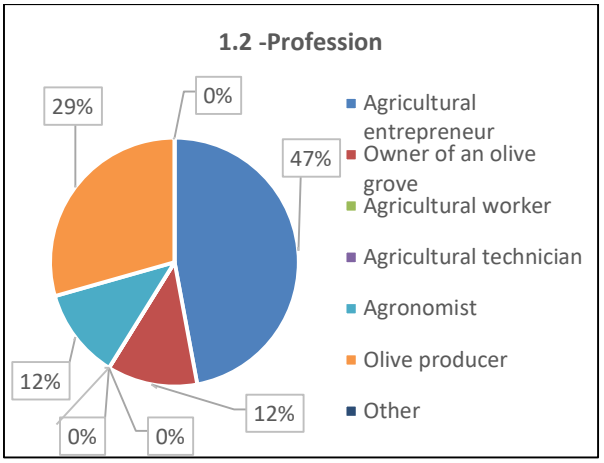
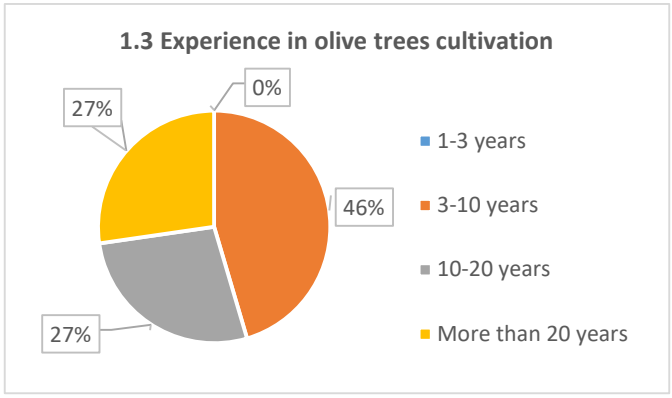
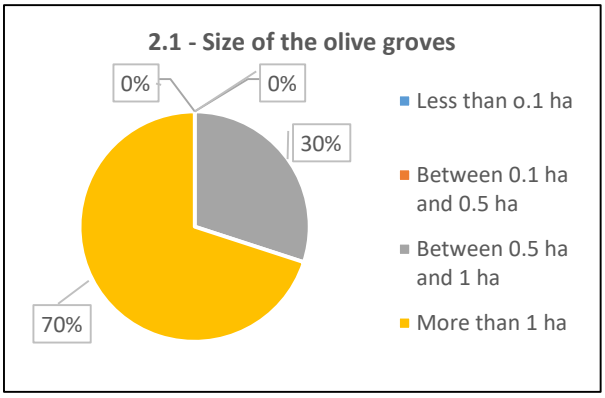


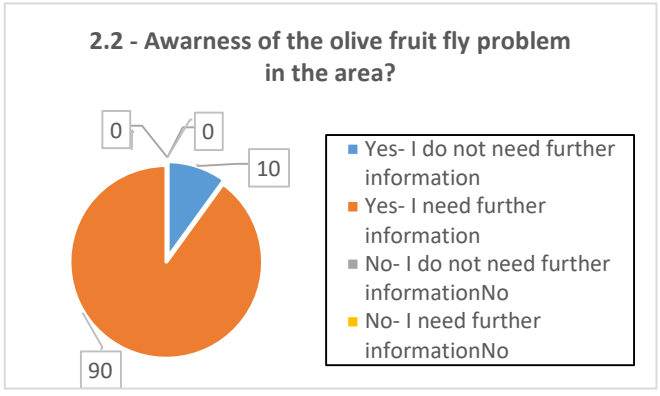
Figure 2: *List of participants*

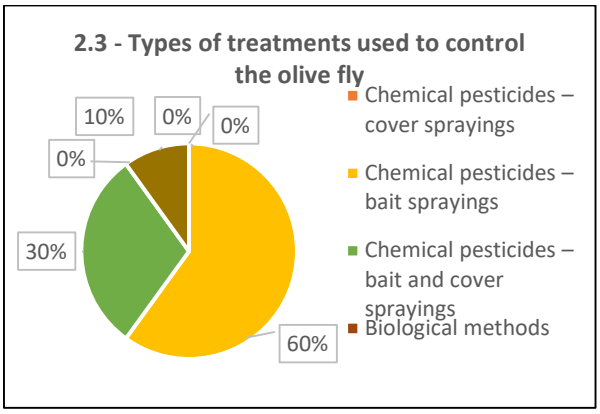

1.1 - Age
0%
36%
64%
Under 30
Between 30 and 50
Between 51 and 65
Over 65


1.2 -Profession
29%
0%
47%
12%
12%
0%
0%
Agricultural entrepreneur
Owner of an olive grove
Agricultural worker
Agricultural technician
Agronomist
Olive producer
Other

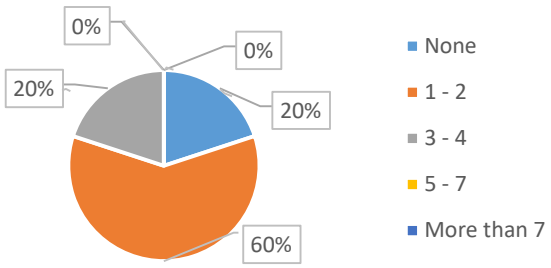

1.3 Experience in olive trees cultivation
27%
0%
46%
27%
1-3 years
3-10 years
10-20 years
More than 20 years


2.1 - Size of the olive groves
0%
0%
30%
70%
Less than o.1 ha
Between 0.1 ha and 0.5 ha
Between 0.5 ha and 1 ha
More than 1 ha

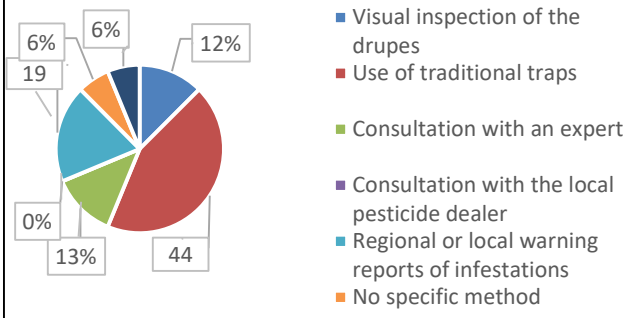

2.2 - Awarness of the olive fruit fly problem in the area?
0
0
10
90
Yes- I do not need further information
Yes- I need further information
No- I do not need further informationNo
No- I need further informationNo


2.3 - Types of treatments used to control the olive fly
10%
0%
0%
0%
30%
60%
Chemical pesticides – cover sprayings
Chemical pesticides – bait sprayings
Chemical pesticides – bait and cover sprayings
Biological methods

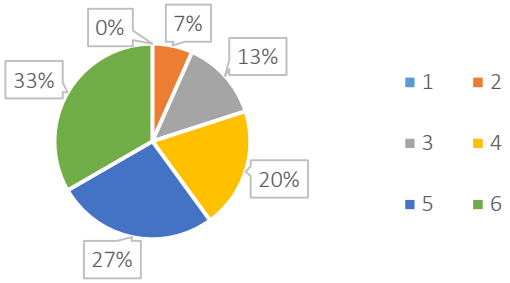
2.4 - On average how many treatments do you carry out against the olive fly in a season?



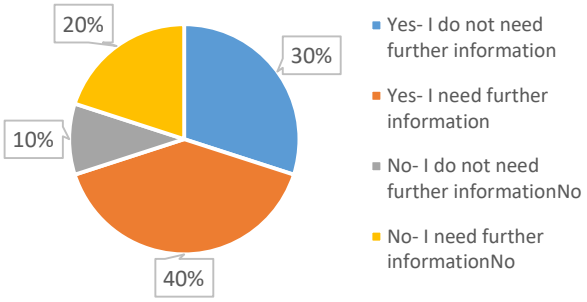
2.5 - How to decide when to apply an olive fly management technique



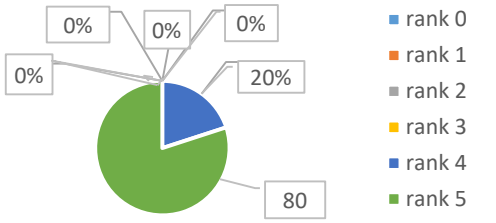
2.6 - Would you be willing to change or supplement your current method of managing olive fly infestation?
(0 no, would not change - 5 yes, definitely)



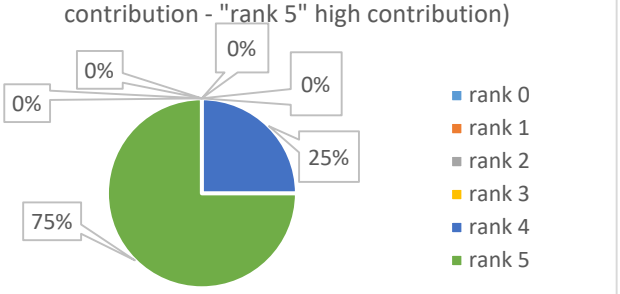
3.1 - Were you already aware of the existence of electronic traps and computer systems for pest management in agriculture?

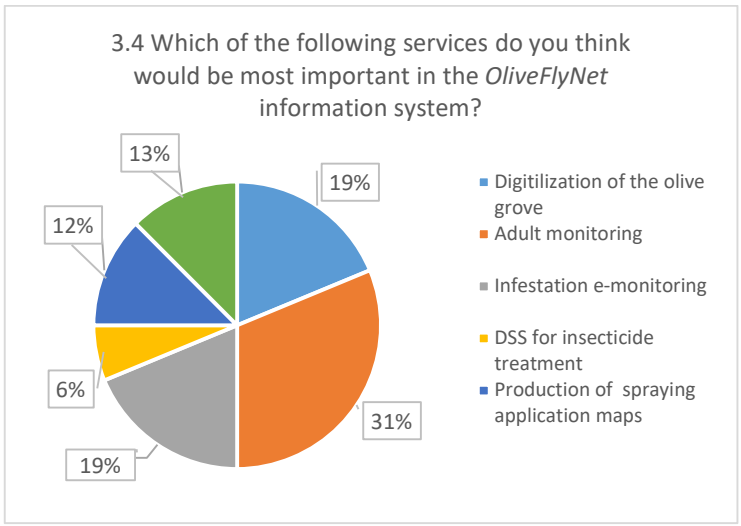


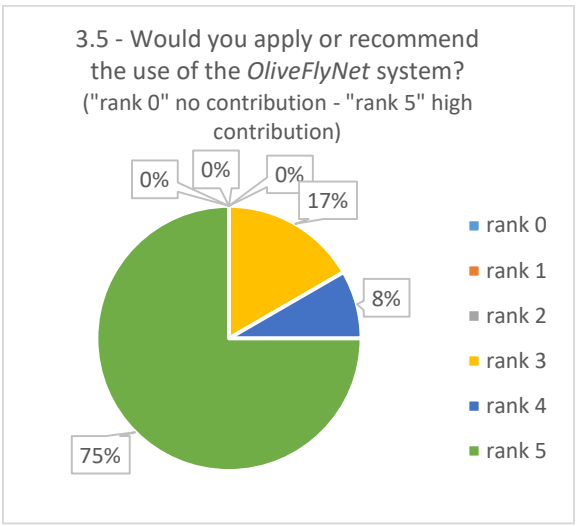
3.2 - Do you think the electronic traps can improve olive fly monitoring? ("rank 0" no contribution - "rank 5" high contribution)

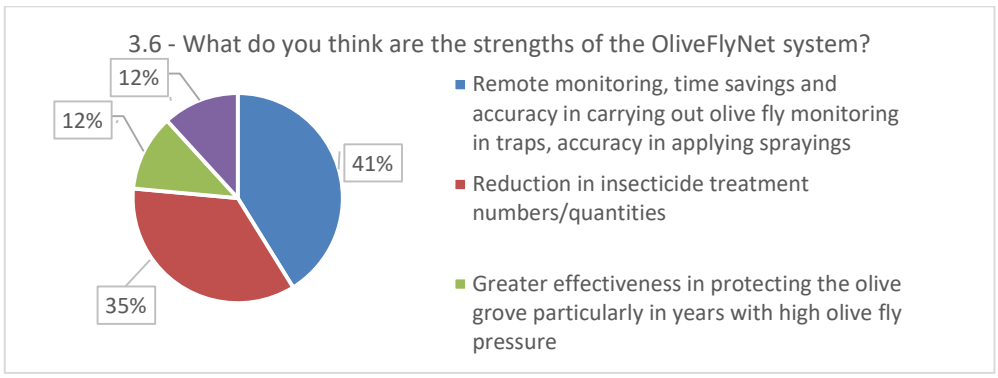


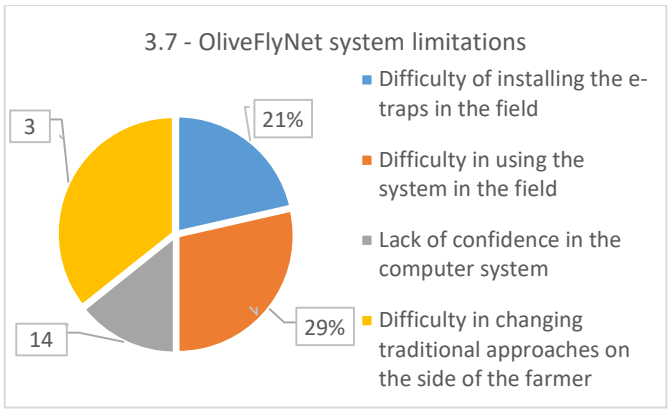
3.3 - Do you think that the *OliveFlyNet* system can contribute to improve olive fly management in your olive grove? ("rank 0" no contribution - "rank 5" high contribution)











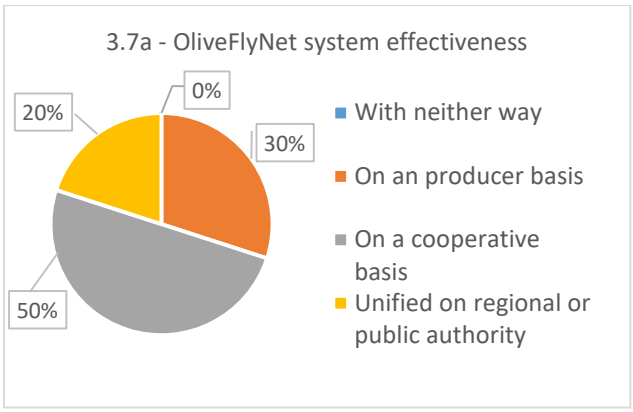


Figure 3*: Responses obtained to this questionnaire (graphs: 1.1-1.3, 2.1-2.6, 3.1-3.7a)*

Photo 1: *The president of Cooperative welcome the team*

Photo 2: *Assoc. Professor Dionysios Perdikis presents the OliveFlyNet system to the olive fruit farmers.*

Photo 3: *Dr. Costas Pontikakos presents the LAS e-services the olive fruit producers*.

Photo 4: *Prof. Theodore Tsiligiridis explains the functionality of to the olive fly e-trap.*

14. **DEMO-15:** *FruitFlyNet-ii* organised demonstration event for the *MedFruitFly* in Foiniki, Laconia, Greece

October 12th, 2023, Agricultural University of Athens (AUA-BEN)

Demo Elements

Organizing Partner: BEN (AUA)
Event Name: *FruitFlyNet-ii organised demonstration event for the MedFruitFly in Foiniki, Laconia, Greece*
Event Date: 12th October 2023
Agenda: Figure 1
Speakers: Prof. Theodore Tsiligiridis, Associate Prof. Dionysios Perdikis, Dr. Costas Pontikakos.
List/No of participants: Figure 2/8 (producers/farmers, researchers)
Physical location/ Line: Foiniki, Laconia**,** South Peloponnese, Greece
URL: FruitFlyNet-ii organizes field demonstration of the electronic system MedFlyNet for the monitoring and control against the Mediterranean fruit fly | ENI CBC Med
Brief Description*:*
On **Thursday, October 12, 2023**, a demonstration event of the ***MedFlyNet*** organized by the **Agricultural University of Athens (AUA)**took place in the village of **Foiniki in Lakonia, South Peloponnese**, where the respective wide area site of the beneficiary is located. The main aims of the demonstration were to present the achievements and the new tools produced under of the ***MedFlyNet***, to describe the benefits they bring to the current practices, demonstrate their functionalities and at the end to open the discussion with the stakeholders, clarify any remarks and collect their opinions attitudes and criticism, also by asking them to fill in a specifically designed questionnaire. The demonstration event started by a welcome speech of the president of the local cooperative of farmers, describing the problems they face in the control of olive fruit fly, which is a main threat to their production and described what they expect from the new system. The members of the team of ***FruitFlyNet-ii*** project welcomed the participants and all stressed the high attendance indicating the high interest for the new developments by the farmers. The project coordinator **Professor Theodore Tsiligiridis** explained the frame and the aims of the ***FruitFlyNet-ii*** project and then presented the e-trap for the ***MedFlyNet***. The benefits of the use of the e-trap in comparison to the limitations of the conventional traps, such as the remote monitoring, the precision in counting the pest captures and the timely collection of field data. The main components of the e-trap were shown to the stakeholders and their functions explained. Then, **Professor Dionysios Perdikis**, technical manager of the project, explained how the decision systems developed in the ***MedFlyNet*** use the data from the traps and other data (infestation, phenological stage of the fruits, climatic data) to decide when, where, how and what to be sprayed in the field according to **Integrated Pest Management (IPM)** rules for applying sprayings against the olive fruit fly. Finally, **Dr Costas Pontikakos** presented the e-services of the ***MedFlyNet*** related to the field digitization, the geodatabase, the remote and in-field data collection, the production of pest risk maps, the guidance for sprayings and the traceability of spraying actions using the modernized platform of ***MedFlyNet*** and the 3D web mapping.

A vivid discussion followed with the feedback of many farmers to be positive saying that the new system can be really very helpful to them and congratulate the team for the innovative approaches developed. Comments also received regarding possible difficulties for farmers to apply the system or about its likely high cost. In the audience also agricultural engineers and extension service personnel were present taking also place in the discussions and the other activities. Next, the in-field demonstration of the system functionalities took place, and the audience had the opportunity to use the GPS tablet to collect and upload by themselves trap and tree data through mobile GIS and to explore the e-trap. At the end the participants filled in the project questionnaire for the ***MedFlyNet*** case. The questionnaire was prepared and elaborated with comments from all the partners to be used in all the demonstrations of the project. At the end, all participants expressed their gratitude for the demonstration and implementation of the project in their olive orchards and expressed willingness to continue with the current implementation of the system up to the harvesting time. They also expressed their interest to participate in the coming **Living Lab meeting** and be informed for further technical developments and the progress of the commercialization process.

Presentations:
Oral presentation of the Med fly e-trap and its functionality by Prof. Theodore Tsiligiridis
BEN_12.10.2023_MedFlyNet_Perdikis.pdf
BEN_12.10.2023i_MedFlyNet_Pontikakos.pdf
In-field demonstration

MedFlyNet **questionnaire:** No questionnaires were distributed because all the participants were the producers already contracted with the project to implement certain activities in their citrus (orange) orchards (see cont.

Figures/Photos

FruitFlyNet II

FruitFlyNet-ii
STR: B_A2.1_0043
ENI CBC MED

Agenda

of the *MedFlyNet* Demonstration

October 12, 2023

Metamorfosi, Laconia, Greece

Agricultural University of Athens (BEN)

FruitFlyNet II

Thursday, October 12, 2023
Cultural Center, Metamorfosi, Laconia, Greece

17:00 - 17:05: Opening – Welcome address
17:05 - 17:15: The *MedFlyNet* e-trap. *Prof. Theodore Tsiligiridis (BEN)*
17:15 - 17:25: The *MedFlyNet* Decision Support Systems. *Prof. Dionysios Perdikis (BEN)*
17:25 - 17:35: The *MedFlyNet* LAS e-services implementation. *Dr Costas Pontikakos (BEN)*
17:40 - 18:00: Demonstration - discussion
18:00: Closing

FruitFlyNet II

ΕΠΙΔΕΙΞΗ ΤΟΥ ΗΛΕΚΤΡΟΝΙΚΟΥ ΣΥΣΤΗΜΑΤΟΣ
MedFlyNet
ΓΙΑ ΤΗΝ ΠΑΡΑΚΟΛΟΥΘΗΣΗ ΚΑΙ ΑΝΤΙΜΕΤΩΠΙΣΗ ΤΗΣ ΜΥΓΑΣ ΤΗΣ ΜΕΣΟΓΕΙΟΥ

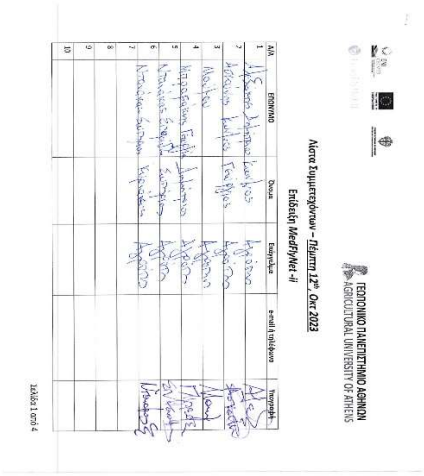
Στο πλαίσιο της ολοκλήρωσης του κοινοτικού έργου FruitFlyNet-ii παρουσιάζεται το σύστημα επίγνωσης θέσης για την προστασία του πορτοκαλεώνα από τη μύγα της Μεσογείου.

12 Οκτωβρίου 2023 & ώρα 18:00 - 19:00
Ενοριακό Πνευματικό Κέντρο Μεταμόρφωσης Λακωνία

Πρόγραμμα: Έναρξη 18:00
Επίδειξη ηλεκτρονικού συστήματος επίγνωσης θέσης για την παρακολούθηση και αντιμετώπιση της μύγας της Μεσογείου. Θα παρουσιαστούν η ηλεκτρονική παγίδα, τα συστήματα λήψης απόφασης και οι ηλεκτρονικές υπηρεσίες για την προστασία του πορτοκαλεώνα.

Ακολουθεί συζήτηση και ανταλλαγή απόψεων
Εισηγητές: **Διονύσιος Περδίκης,** *Γεωπόνος - Εντομολόγος,*
Θεόδωρος Τσιλιγκιρίδης, *Πληροφορικός - ΤΕΠ*
και **Δρ Κωνσταντίνος Ποντικάκος,** *Γεωπόνος-Γεωπληροφορικός*

ΓΕΩΠΟΝΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
AGRICULTURAL UNIVERSITY OF ATHENS



Λίστα Συμμετεχόντων – Πέμπτη 12ης Οκτ 2023
Επίδειξη MedFlyNet -ii

ΓΕΩΠΟΝΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
AGRICULTURAL UNIVERSITY OF ATHENS

Figure 1: *Agenda and invitation of the MedFlyNet prototype demonstration*

Figure 2: *List of MedFlyNet participants*

Photo 1: *An overview of the MedFlyNet system to the orange fruit farmers.*

Photo 2: *Installing the MedFly e-Traps*

Photo 3-4: *Assoc. Professor Dionysios Perdikis and Dr. Costas Pontikakos present the MedFlyNet system to the citrusfruit farmers.*

15. **DEMO-16:** *MedFlyNet* prototype demonstration in Corcolle, Latium, Italy

October 12, 2023, University of Molise (UNIMOL-P02)

Demo Elements

Organizing Partner: P02 (UNIMOL)
Event Name: ***MedFlyNet prototype demonstration in Corcolle, Latium, Italy***
Event Date: 12th October 2023
Agenda: Figure 1
Speakers: Associate Prof. Andrea Sciarretta, Filippo De Curtis, Dr.Marco Colacci; Dr. Guido Bernabei, Dr. Patrizia Ferrante, Dr. Maria Rosaria Tabilio, Prof. Carlo Fideghelli.
List/No of participants: Figure 2/19 (producers/farmers, researchers).
Physical location/ Line: Verbesi farm, Corcolle. Latium, Italy.
URL: https://www.enicbcmed.eu/medflynet-field-demonstration-event-organized-university-molise-italy
Brief Description*:* This demonstration was taken place at the Verbesi farm, located in Corcolle (Latium), composed by peach orchards, where WP4 activities have been implemented for test the *MedFlyNet* prototype system. In addition to UNIMOL staff, also researchers from CREA-Centre of Fruitculture, a subcontractor in the project, participated to the event. Stakeholders are farmers, agronomists, policy makers. Thirty-nine (39) participants attended the event (**Figure 2**). Prof. Andrea Sciarretta opened the meeting by introducing the project *FrutiFlyNet-ii* and briefly explaining the *MedFlyNet* system. After that, he gave the floor to the Lazio Region Agriculture Councilor and the Regional Environment Agency Director for their institutional greetings.
All the participants moved to the nearby orchards to see and test the prototype. In the field the following components were observed and tested: digitalized farm, use of the device to orientate in the orchard, e-trap, recognition and counting of medfly specimens from the device, production of the risk maps, use of the DSS, DSS outputs, type of treatment suggested by the DSS. An approval questionnaire consisting of 19 questions has been submitted to the participants of the final event of the project *MedFlyNet*, split into three parts. The first slot was composed by questions about professional information, the second by queries about the dimension and management of their orchards and the third about the use of the *MedFlyNet* LAS system and the project concluded. The compiled tests were 29 overall. Results are shown in **Figure 3**. In the premise of the farm, a technical and informative meeting took place, with the participation of experts. Dr. Marco Colacci (UNIMOL) introduced the concepts of Smart agriculture, Dr. Guido Bernabei (CREA) spoke about the new medfly control tools, Dr. Patrizia Ferrante (CREA) reported some examples of sustainable control from Italy, Dr. Rosaria Tabilio (external expert) summarized the SIT application for medfly control and Prof. Carlo Fideghelli (external expert) analysed the problems due to the withdrawal of insecticides in the EU countries and possible alternatives.

Presentations: *P02_12.10.2023_Sciarretta.pdf*

***MedFlyNet* questionnaire:**

PART 1

1.1) Age:

- o Under 30
- o Between 30 and 50
- o Between 51 and 65
- o Over 65

1.2) Profession (several options can be selected)

- o Agricultural entrepreneur
- o Owner of a fruit orchard
- o Agricultural worker
- o Agricultural technician
- o Agronomist
- o Fruit retailer
- o Other _____

PART 2 (to be filled out only if you are a fruit orchard owner or if you are responsible for a fruit orchard)

2.1) What is the size of your fruit orchard?

- o Less than 1 hectare
- o Between 1 hectare and 5 hectares
- o Between 5 and 10 hectares
- o More than 10 hectares

2.2) Are you aware of the Mediterranean fruit fly problem in your area?

- o Yes
- o No

2.3) What types of treatments do you currently use to control the Mediterranean fruit fly?

- o Chemical pesticides – cover sprayings
- o Chemical pesticides – bait sprayings
- o Chemical pesticides – bait and cover sprayings
- o Biological methods
- o Preventive measures – mass trapping, attract-and-kill
- o I do not use any treatment
- o Other (specify):_____

2.4) On average how many treatments do you carry out against the Mediterranean fruit fly in a season?

- o 1-2
- o 3-4
- o 5-7
- o More than 7

2.5) How do you decide when to apply a Mediterranean fruit fly management technique?

- o Visual inspection of the fruits
- o Use of traditional traps

o Consultation with an expert
o Consultation with the local pesticide dealer
o Regional or local warning reports of infestations
o No specific method
o Other (specify):_____

2.6) Would you be willing to change or supplement your current method of managing Mediterranean fruit fly infestation? (tick answer, 0 no, would not change - 5 yes, definitely)

0 1 2 3 4 5

PART 3

3.1) Were you already aware of the existence of electronic traps and computer systems for pest management in agriculture?

o Yes
o No

If YES, describe shortly:

3.2) Do you think the electronic traps can improve Mediterranean fruit fly monitoring?
(tick answer, 0 no contribution - 5 high contribution)

0 1 2 3 4 5

3.3) Do you think that the *MedFlyNet* system can contribute to improve Mediterranean fruit fly management in your fruit orchard? (tick answer, 0 no contribution - 5 high contribution)

0 1 2 3 4 5

3.4) Which of the following services do you think would be most important in the *MedFlyNet* information system?

o Digitization of the fruit orchard
o Adult monitoring
o Infestation monitoring
o Decision Support System for insecticide treatment
o Traceability of insecticide treatment carried out.

3.5) Would you apply or recommend the use of the *MedFlyNet* system?
(please tick the answer, 0 definitely no - 5 definitely yes)

0 1 2 3 4 5

3.6) What do you think are the strengths of the *MedFlyNet* system?
(choose the two answers you think are most important)

o Remote monitoring, time savings and accuracy in carrying out olive fly monitoring in traps, accuracy in applying sprayings
o Reduction in insecticide treatment numbers/quantities
o Greater effectiveness in protecting the olive grove particularly in years with high olive fly pressure
o Increased timeliness of intervention

3.7) What do you think the limitations of the *MedFlyNet* system might be?
(choose the two answers you think are most important)

o Difficulty of installing the e-traps in the field
o Difficulty in using the system in the field
o Lack of confidence in the computer system

o Difficulty in changing traditional approaches on the side of the farmer

3.8) How do you think the *MedFlyNet* system could be improved

Analysis and Results: **Figures 3**

In response to the participants' questionnaires the results obtained from the analysis summarized as shown in the **Figure 3.**

Slot 1

Through the analysis of the first slot of questions it emerged that the sample was composed by 29 people, with an average age from 30 to 50 years old (the 34%), followed by people over 65 (31%) and people with an average age from 50 to 65 years (28%). The second question of this slot was about the profession. Most of the presents were agricultural entrepreneur (34%), followed by owners of orchards (28%) and Agronomists (24%).

Slot 2

The first question of the second part of the test was about the dimension of the orchard. The 28% of the orchard has an extension of more than 10 ha, followed by orchards from 1 to 5 ha (21%) and from 5 to 10 ha (17%).

About the knowledge of the medfly problem in the area, 100% of the sample knew the problem.

About the medfly management, 48% use Chemical pesticides (with cover sprayings), 21% Chemical pesticides (bait and cover sprayings) and 14% don't use any treatment. The 28% said that they do more than 7 treatments in the year, 21% do 5-7 treatments, the 14% 1 to 2 treatments and the 7% 3 to 4.

For the question on how people decide when to apply a medfly management, 41% of them use traditional traps and the 24% does visual inspection of the fruits. The 10% require a consultation with an expert. The last question of this slot was about the availability to change their own management model for Med fruit fly. The 38% would change their model; the 3% absolutely wouldn't change. At this question ten people didn't answer at all (34%).

Slot 3

The third slot was about the knowledge of electronic traps and the MedFlyNet project. The first question was about the knowledge of electronic traps for monitoring pests in agriculture. The 48% had not knowledge about this type of traps. At this question two people didn't answer.

About the possibility to improving the monitoring of Medfly using the e-trap, using a scale from 0 to 5 (0 no contribution-5 high contribution), most of the sample thinks that the use of this type of traps might contribute at monitoring. The 48% rated 5 and the 17% rated 4.

Considering the whole *MedFlyNet* system, most of the sample thinks that it might be a help in the management of the orchard. The 41% rated 5 and the 21% rated 4. For the people the most important services in the MedFlyNet are the possibility to have a Decision Support System for insecticide treatment (41%) and the help in adult monitoring (38%).

When asked if people would apply or recommend the use of *MedFlyNet* system, using a scale from 0 to 5, the positive answers were high, with the 48% rated 5 and the 24% rated 4. About the strengths of the *MedFlyNet* system, the 45% thinks that the most important point of the system is the possibility to do a remote monitoring, time savings and accuracy in carrying out med fruit fly monitoring in traps, accuracy in applying sprayings. For another 38% the system is important to reduce insecticide treatments.

About the criticality of the system, for about 45% of answers, it might be difficult to change traditional approaches on the side of the farmer and for 38% it might be difficult use the system in the field. As last open question, it was asked how to improve *MedFlyNet* system. Only five people answered and indicated more advertising and a reduction

in the costs of the e-trap.

18:00- 19:30 Dissemination event

In the premise of the farm, a technical and informative meeting took place, with the participation of experts. Dr. Marco Colacci (Unimol) introduced the concepts of Smart agriculture, dr. Guido Bernabei (CREA) spoke about the new medfly control tools, dr. Patrizia Ferrante (CREA) reported some examples of sustainable control from Italy and Spain, dr. Rosaria Tabilio (external expert) summarized the SIT application for medfly control and prof. Carlo Fideghelli (external expert) analyzed the problems due to the withdrawal of insecticides in the EU countries and possible alternatives.

The filled questionnaires are in the attached files.

P02_12.10.2023_AnsQues_1-33.pdf

Figures/Photos:

FruitFlyNet II

Commercialization of an Automated Monitoring and Control System against the Olive and Med Fruit Flies of the Mediterranean Region

INCONTRO TECNICO-DIMOSTRATIVO
12 OTTOBRE 2023
h. 16:00 – 19:00
SOCIETÀ AGRICOLA PRUNUS PERSICA DI VERBESI S.S.
Via Polense 470, CORCOLLE (RM)

L'incontro tecnico-dimostrativo viene organizzato nell'ambito del progetto FruitFlyNet-II finanziato nell'ambito del ENICBCMED Programme 2014-2020 - Cooperating Across Borders in the Mediterranean. Si assisterà alla dimostrazione in campo della trappola elettronica e del sistema di supporto alle decisioni (DSS) utili nella gestione delle infestazioni da Mosca Mediterranea della frutta. Gli interventi da parte di ricercatori ed esperti del settore affronteranno le problematiche inerenti la difesa del frutteto.

Segreteria organizzativa: Dott.ssa Patrizia Ferrante, Prof. Andrea Sciarretta

Per informazioni e registrazioni:
patrizia.ferrante@crea.gov.it
sciarretta@unimol.it

FruitFlyNet II

Commercialization of an Automated Monitoring and Control System against the Olive and Med Fruit Flies of the Mediterranean Region

Programma:

Inizio h.16:00.
Registrazione partecipanti
Saluti e Introduzione al Progetto, Prof. Andrea Sciarretta - Università degli Studi del Molise

Dimostrazione in campo della trappola elettronica e del prototipo Medflynet

Interventi programmati:

- Dott. Marco Colacci – Università degli Studi del Molise. L'agricoltura digitale
- Dott. Guido Bernabei – CREA-OFA. Ciclo biologico, danni e metodi di controllo ecocompatibili della Mosca Mediterranea della frutta
- Dott.ssa Patrizia Ferrante – CREA-OFA. Gestione degli attacchi di *Ceratitis capitata* in diversi areali (Calabria e Murcia-Spagna)
- Dott.ssa Maria Rosaria Tabilio – CREA-OFA. La tecnica dell'insetto sterile per gestire *Ceratitis capitata*: una strategia possibile
- Prof. Carlo Fideghelli – CREA-OFA. La politica europea di riduzione degli antiparassitari tradizionali e le gravi difficoltà dei frutticoltori per il controllo della Mosca Mediterranea della frutta
- Dott.. Renato Merzetti – Presidente Terre Sabine s.r.l. Criticità riscontrate nella filiera frutticola della Sabina

h.19:00 Discussione

Al termine buffet di saluto

Segreteria organizzativa: Dott.ssa Patrizia Ferrante, Prof. Andrea Sciarretta

Per informazioni e registrazioni:
patrizia.ferrante@crea.gov.it
sciarretta@unimol.it

Figure 1: *The agenda*

ENI CBCMED Cooperating across borders in the Mediterranean

Project funded by the EUROPEAN UNION

REGIONE AUTÒNOMA DE SARDIGNA
REGIONE AUTONOMA DELLA SARDEGNA

FruitFlyNet II

ENI CBCMED — Programme funded by the EUROPEAN UNION — REGIONE AUTÒNOMA DE SARDIGNA REGIONE AUTONOMA DELLA SARDEGNA

FruitFlyNet II

DIMOSTRAZIONE IN CAMPO

Dimostrazione in campo del sistema informatico MedFlyNet

Giovedì 12 ottobre 2023 ore 16.00
Società Agricola *Prunus persica* di Verbesi, Via Polense 470 – Corcolle (Roma)

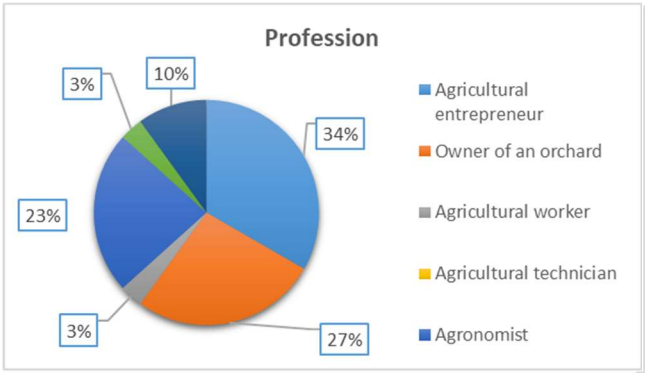
ELENCO PARTECIPANTI

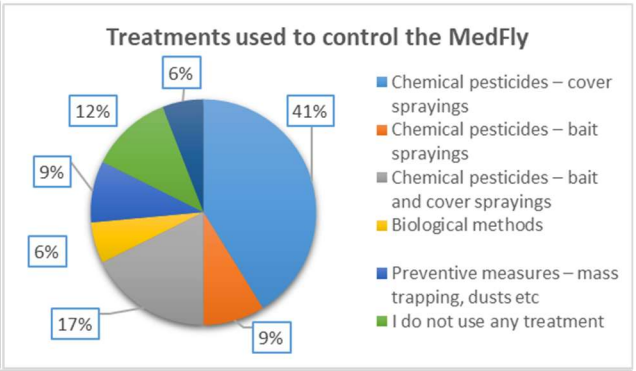
NOME	PROFESSIONE	CONTATTI	FIRMA
[illegible]	[illegible]	338 8608455	[illegible]
Pietro	C.D.		[illegible]
Guido Bernabei	Agronomo	393 96 77757	[illegible]
Pietro	Aiuto C.D.	335 8007115	[illegible]
Dante	Antonelli		[illegible]
[illegible]	[illegible]	3332772934	[illegible]
Vito	[illegible]		[illegible]
Roberto [illegible]	P. Agrario	3337461840	[illegible]
M. Rosaria Labilio	ex [illegible]	320-0738806	[illegible]
Mario Colagrossi coop. Condotti 77	Pensionato	3339923355	[illegible]
Valeria Pablli	Agronomo	3206227506	[illegible]
Echrak Aissa	Agronoma	3477152489	[illegible]
Alessandra Bianchi	Dirigente Reg. Lazio	[illegible]@regione.lazio.it	[illegible]
Filippo Gotti	Agronomo	328 6719094	[illegible]
[illegible]	Agronomo	3355493424	[illegible]

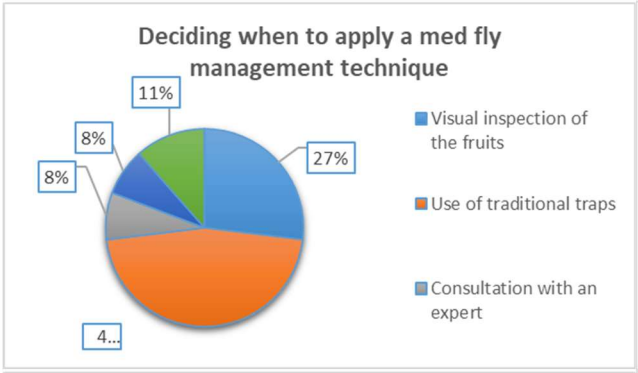
NOME	PROFESSIONE	CONTATTI	FIRMA
Alfonso Silvi	Imprenditore agricolo	3345627754	[illegible]
Luigino Silvi	Agricoltore	0774/63584	[illegible]
Donati Mariano	Agricoltore	338 4003983 donat.mariano@gmail.com	[illegible]
Massimiliano Silvi	Imprenditore agricolo	338 8062761	[illegible]
Pallante [illegible]	Pensionato	333 8005115	[illegible]
Pelliccioni Luca	Dipendente	3270924430	[illegible]
Andrea Rossi	Libero professionista	339/4211648	[illegible]
Claudio Cappellini	[illegible]		[illegible]
Patrizia Ferrante	Ricercatrice	3471278551	[illegible]
[illegible]	Ricercatore	347 1833022	[illegible]
Salvatore Ana	Agricolt.		[illegible]
Alessio Quattrucci	Agronomo	333 7664348	[illegible]
Coop. S. Nicola	Agricola	338-8837187	[illegible]
[illegible]	Agricola	3485842323	[illegible]
Cinki Stefano	C.D.	3386882813	[illegible]
Cesare Ippolito	Agronomo	3484967640	[illegible]
Giovannetti Giusi		3395269544	[illegible]
Mario	Giovannetti	3289480328	[illegible]
Roberto	Valori	3334884669	[illegible]
Alberto	Imprenditore [illegible]	3355246275	[illegible]
Fausto Marsili	C.D.	3468338216	[illegible]
Maurizio	Giordano	3897832162	[illegible]

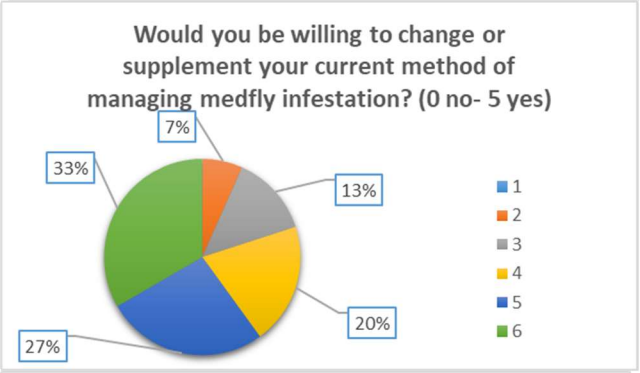
NOME	PROFESSIONE	CONTATTI	FIRMA
Antimo	Torres	3332214164	[illegible]
Guido Verardi	Agricoltore	3332964782	[illegible]
Claudio Ceccaroli	Tecnico agrario	3381799929	[illegible]
Verbesi E	Agricoltore	338-8887008	[illegible]
A. Sabatini	Prof.	339 714658	[illegible]
Marco Colacci	Ricercatore Unimol	3299353605	[illegible]
Verbesi Benedetta	IAP	3440739431	[illegible]

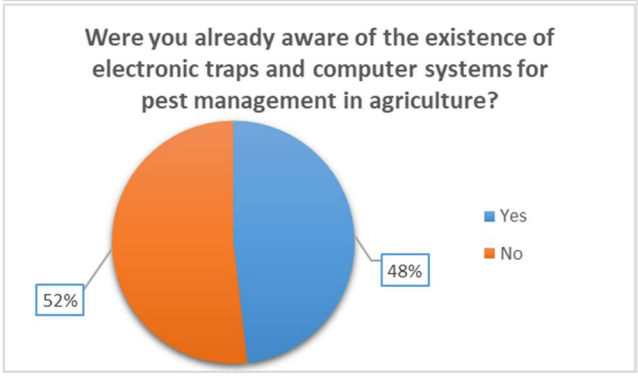
Figure 2: *The attendance lists.*

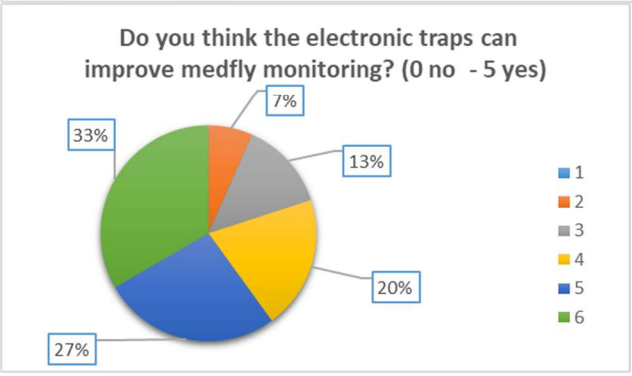

Profession
3%
10%
34%
23%
3%
27%
Agricultural entrepreneur
Owner of an orchard
Agricultural worker
Agricultural technician
Agronomist


Treatments used to control the MedFly
6%
12%
41%
9%
6%
17%
9%
Chemical pesticides – cover sprayings
Chemical pesticides – bait sprayings
Chemical pesticides – bait and cover sprayings
Biological methods
Preventive measures – mass trapping, dusts etc
I do not use any treatment


Deciding when to apply a med fly management technique
11%
8%
27%
8%
4...
Visual inspection of the fruits
Use of traditional traps
Consultation with an expert


Would you be willing to change or supplement your current method of managing medfly infestation? (0 no- 5 yes)
7%
33%
13%
20%
27%
1
2
3
4
5
6


Were you already aware of the existence of electronic traps and computer systems for pest management in agriculture?
48%
52%
Yes
No


Do you think the electronic traps can improve medfly monitoring? (0 no - 5 yes)
7%
33%
13%
20%
27%
1
2
3
4
5
6

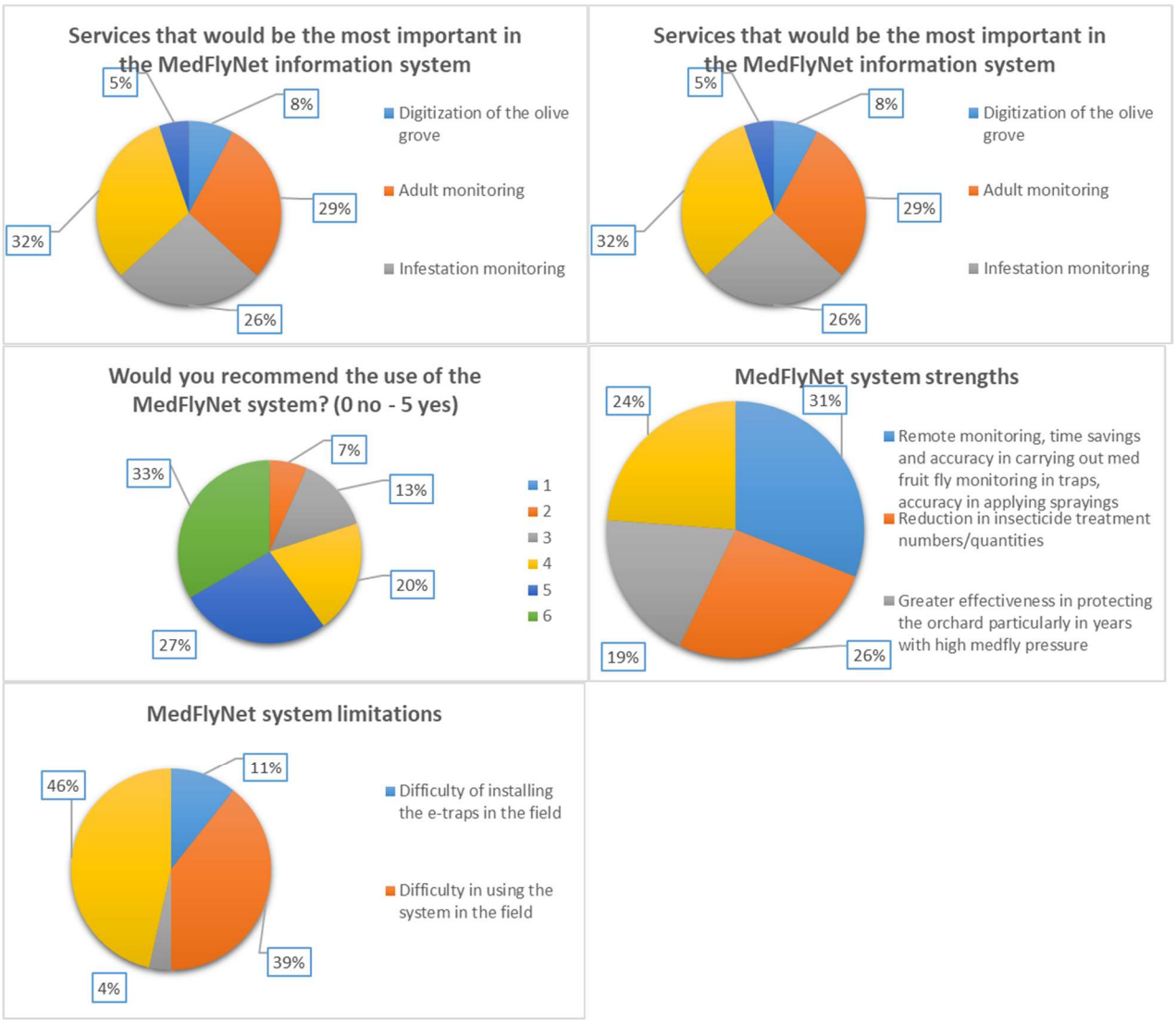


Figure 3: *Analysis of completed questionnaires.*


Photos 1-2: *The discussion of the MedFlyNet Location Aware System with the participants to the event.*


Photos 3-4: *Two moments of MedFlyNet's field demonstration*

16. **DEMO-17:** *FruitFlyNet-ii*: In field e-trap prototype demonstration in Tal Amara, Bekaa, Lebanon

October 20th, 2023, Lebanese Agricultural Research Institute (LARI-P03)

Demo Elements

Organising Partner: P03 (LARI)
Event Name: ***FruitFlyNet-ii***: In field e-trap prototype demonstration in LARI, Tal Amara, Bekaa, Lebanon.
Event Date: March 20th, 2023
Agenda: Figure 1
Speakers: Eng. Ahmad ELBITAR, Eng. Nessrine ELTURKY and Dr. Linda KFOURY
List and number of participants: Figure 2 (19 farmers/producers, SME's , researchers).
Physical location/ Line: LARI - Tal Amara- Bekaa- Lebanon.
URL: OliveFlyNet demonstration & innovation day organised in Bekaa, Tal-Amara, Lebanon | ENI CBC Med
Brief description:
The demonstration & innovation day for ***FruitFlyNet-ii*** project held on *20th October 2023* at Lebanese Agriculture Research Institute - LARI. An exciting project demonstration organized by the partner P03, LARI (Lebanese Agriculture Research Institute) took place in the experimental field of Tal Amara station, Bekaa, Lebanon. The main goals of the demonstration were to present and show the achievements done under the ***FruitFlyNet-ii*** project, to explain the innovative technology that offer a potential economic advantage & environmentally friendly as well as explaining the components and functionality of the e-trap prototype.
LARI team welcomed the attendees and the demonstration event started off with a short talk explaining the process and components of the e-trap and then jumped right into an actual demonstration of the e-trap done by the expert Engineer Nisreen ELTURKY.
During the demonstration, the Local Coordinator Ahmad ELBITAR project coordinator talked about the project aims and the problems facing in controlling the olive fruit fly that the farmers are really suffering from this fly since it is damaging their products. Ahmad ELBITAR demonstrated the e-trap process/functionality and provided a detail explanation of the decision support system to produce a risk maps and alerts that will lead the farmer to control/ treat only when it is required and in specific locations.
Most of the event attendees were farmers and agricultural engineers although entomologists, SME's, researchers were also present in this event.
Attendees gained valuable insights into the potential of the e-trap technologies. By fostering creativity and knowledge exchange, the demonstration contributed to the progress of the ***FruitFlynet-ii*** project and empowered farmers to make meaningful contributions in controlling the olive fruit fly.
Great feedback noticed from the farmers, and they were eager to apply the system in their orchards.

Presentations (*In-field demonstration)***:** Oral presentations and discussions by the Local Coordinator Ahmad ELBITAR and the Engineer Nessrine ELTURKY

OliveFlyNet **questionnaire:**

A common questionnaire for all project partners was prepared in English language. The team worl of the Lebanese Agricultural Research Institute (PP3), translated the questionnaire into the Arabic language (Annex 5).

The questionnaire was distributed to the 19 participants in this e-trap demonstration event in addition it was distributed to certain owners of hasbaya site archards. A total of 27 people were interviewed.

Part 1:

1.1) Age:

- o Under 30
- o Between 30 and 50
- o Between 51 and 65
- o Over 65

1.2) Profession (several options can be selected)

- o Agricultural entrepreneur
- o Owner of an olive grove
- o Agricultural worker
- o Agricultural technician
- o Agronomist
- o Olive mill owner
- o Other _____

PART 2 (to be filled out only if you are an olive grove owner or if you are responsible for an olive grove)

2.1) What is the size of your olive grove?

- o Less than 1 hectare
- o Between 1 hectare and 5 hectares
- o Between 5 and 10 hectares
- o More than 10 hectares

2.2) Are you aware of the olive fruit fly problem in your area?

- o Yes
- o No

2.3) What types of treatments do you currently use to control the olive fly?

- o Chemical pesticides – cover sprayings
- o Chemical pesticides – bait sprayings
- o Chemical pesticides – bait and cover sprayings
- o Biological methods
- o Preventive measures – mass trapping, dusts etc
- o I do not use any treatment
- o Other (specify):_____

2.4) On average how many treatments do you carry out against the olive fly in a season?

- o 1-2
- o 3-4

o 5-7
o More than 7

2.5) How do you decide when to apply an olive fly management technique?
o Visual inspection of the drupes
o Use of traditional traps
o Consultation with an expert
o Consultation with the local pesticide dealer
o Regional or local warning reports of infestations
o No specific method
o Other (specify):_____

2.6) Would you be willing to change or supplement your current method of managing olive fly infestation? (tick answer, 0 no, would not change - 5 yes, definitely)
0 1 2 3 4 5

PART 3

3.1) Were you already aware of the existence of electronic traps and computer systems for pest management in agriculture?
o Yes
o No

If Yes, describe shortly:

3.2) Do you think the electronic traps can improve olive fly monitoring?
(tick answer, 0 no contribution - 5 high contribution)
0 1 2 3 4 5

3.3) Do you think that the *OliveFlyNet* system can contribute to improve olive fly management in your olive grove?
(tick answer, 0 no contribution - 5 high contribution)
0 1 2 3 4 5

3.4) Which of the following services do you think would be most important in the *OliveFlyNet* information system?
o Digitization of the olive grove
o Adult monitoring
o Infestation monitoring
o Decision Support System for insecticide treatment
o Traceability of insecticide treatment carried out.

3.5) Would you apply or recommend the use of the *OliveFlyNet* system?
(please tick the answer, 0 definitely no - 5 definitely yes)
0 1 2 3 4 5

3.6) What do you think are the strengths of the *OliveFlyNet* system?
(choose the two answers you think are most important)
o Remote monitoring, time savings and accuracy in carrying out olive fly monitoring in traps, accuracy in applying sprayings
o Reduction in insecticide treatment numbers/quantities
o Greater effectiveness in protecting the olive grove particularly in years with high olive fly pressure
o Increased timeliness of intervention

3.7) What do you think the limitations of the *OliveFlyNet* system might be?
(choose the two answers you think are most important)

- o Difficulty of installing the e-traps in the field
- o Difficulty in using the system in the field
- o Lack of confidence in the computer system
- o Difficulty in changing traditional approaches on the side of the farmer

3.8) How do you think the *OliveFlyNet* system could be improved to meet your needs?

Analysis and Results:

In response to the participants' questionnaires the results obtained from the analysis presented in **Figure 3.**

The filled questionnaires are in the attached file:.*P03_OliveFlyNet_Compiled_questionnaires.pdf*

Figures/Photos:

FruitFlyNet-ii
Strategic: B_A2.1_0043
ENI CBC MED

Agenda

of the E-trap prototype demonstration event
Friday, October 20, 2023

Lebanese Agricultural Research Institute
Tal Amara – Zahle

11:00- 11:30	Registration
11:30-11:45:	Welcome at Tal Amara station, Eng. Ahmad ELBITAR
11:45-12:15	Overview about FruitFly ii project and the e-trap prototype, Eng. Ahmad ELBITAR
12:15-13:00	Eng. Nessrine ELTURKY, E-trap in field prototype demonstration
13:00-13:30	Discussions
13:30	Coffee break

Figure 1: *Agenda of the E-trap prototype demonstration event in Tal Amara*

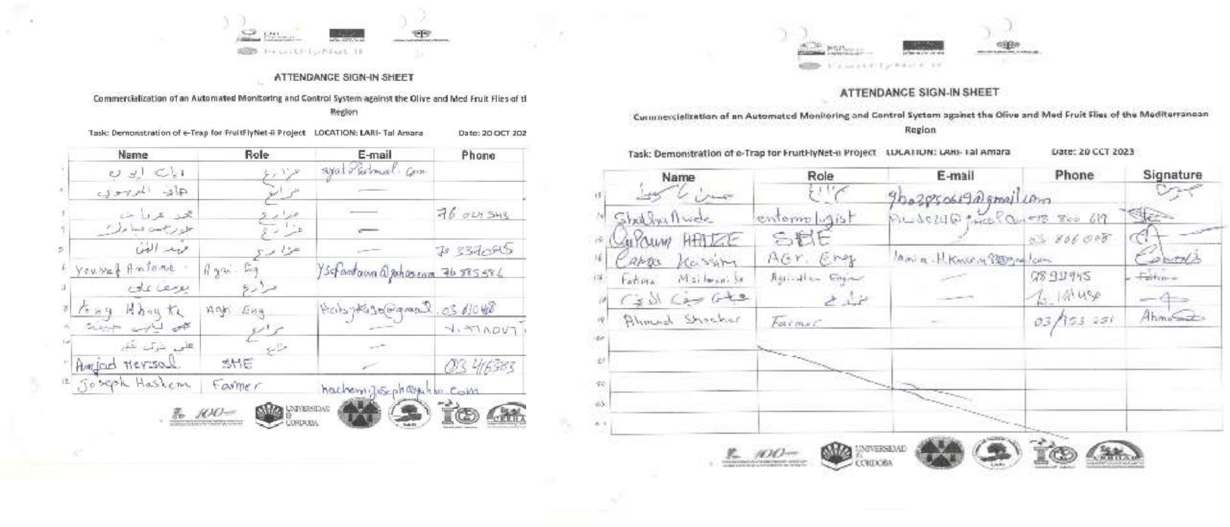
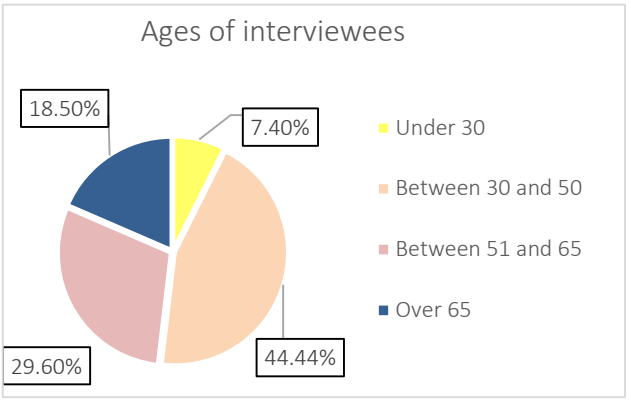
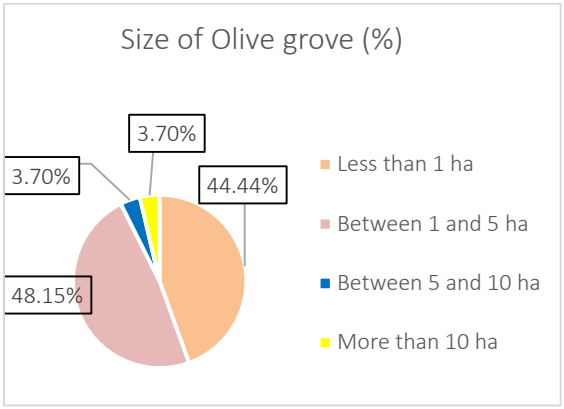
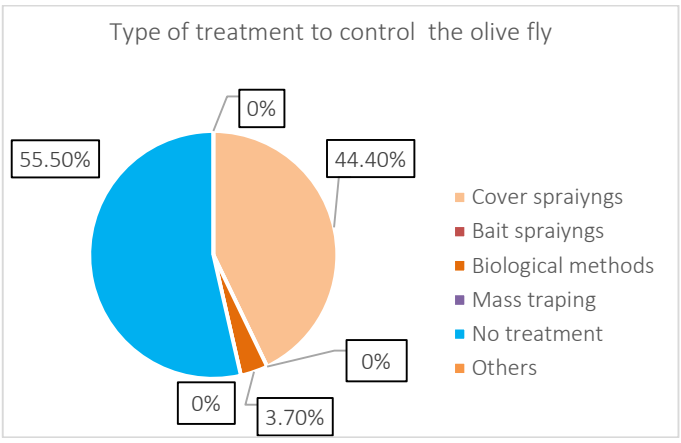
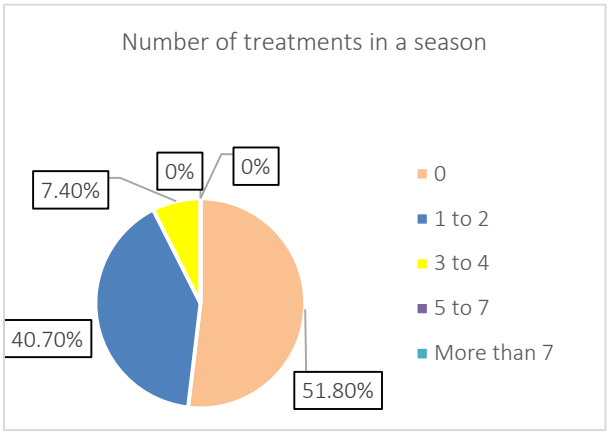


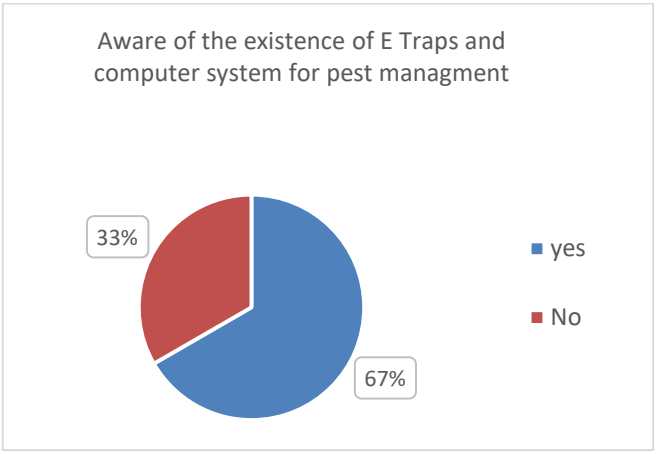
Figure2: *The list of participants: 27 (farmer participant and farmers owners of the orchard site, agricultural engineers, entomologists, SME's, researchers)*

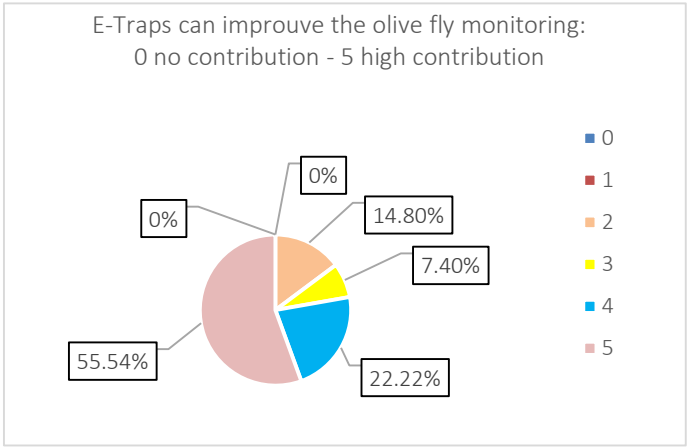

Ages of interviewees
18.50%
7.40%
29.60%
44.44%
Under 30
Between 30 and 50
Between 51 and 65
Over 65

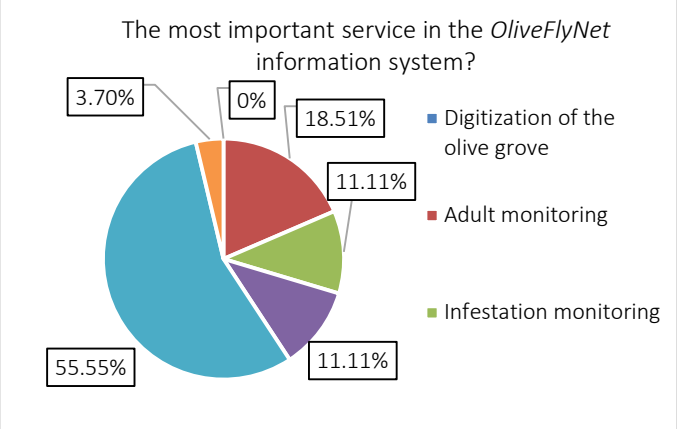

Size of Olive grove (%)
3.70%
3.70%
44.44%
48.15%
Less than 1 ha
Between 1 and 5 ha
Between 5 and 10 ha
More than 10 ha

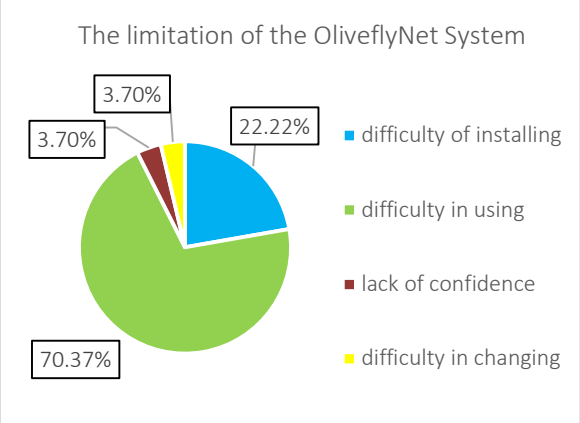

Type of treatment to control the olive fly
0%
55.50%
44.40%
0%
0%
3.70%
Cover spraiyngs
Bait spraiyngs
Biological methods
Mass traping
No treatment
Others

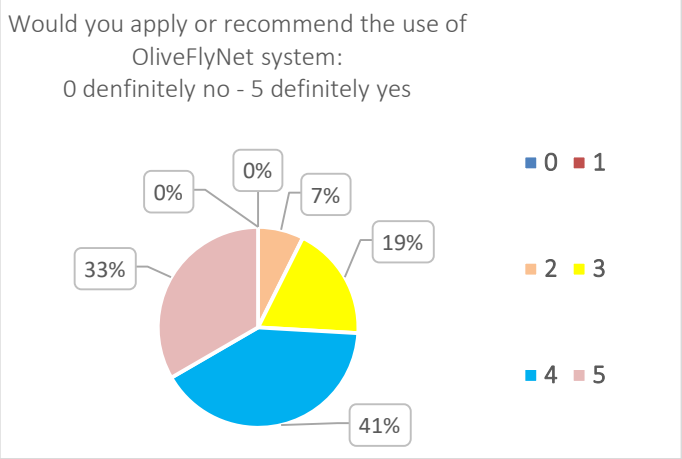

Number of treatments in a season
7.40%
0%
0%
40.70%
51.80%
0
1 to 2
3 to 4
5 to 7
More than 7

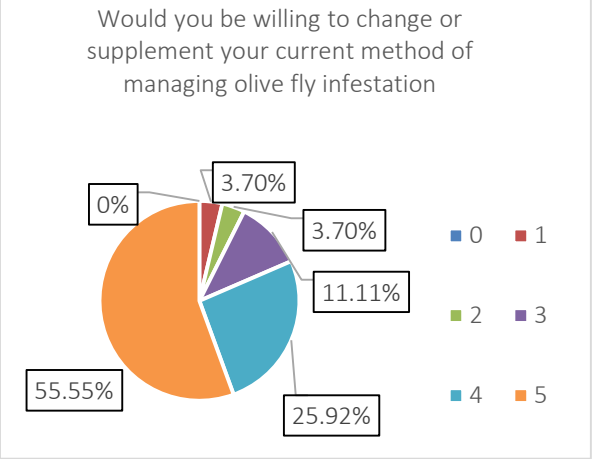

Aware of the existence of E Traps and computer system for pest managment
33%
67%
yes
No

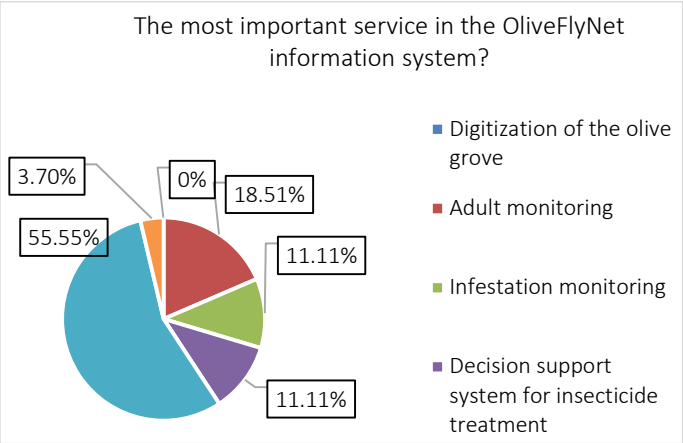

E-Traps can improuve the olive fly monitoring:
0 no contribution - 5 high contribution
0%
0%
14.80%
7.40%
55.54%
22.22%
0
1
2
3
4
5











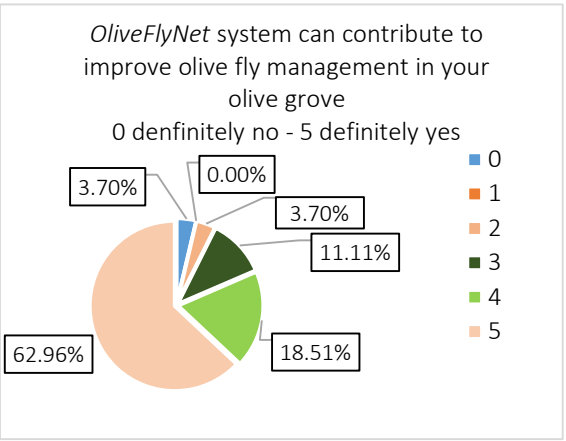


Figure 3: *Responses obtained to this questionnaire*

Photo 1-2: Local Coordinator Ahmad ELBITAR and Dr. Linda KFOURY, showing the e-trap prototype.

Photo 2: Engineering Nessrine ELTURKY presenting the functionality of the e-trap prototype

Photo 3: *Demonstrating the results to the participants*

Photo 4. *OliveFlyNet participants*