



LIFE Project Number
LIFE12 ENV/IT 000719

Progress Report
Covering the project activities from 01/07/2013 to 28/02/2015

Reporting Date
16/03/2015

LIFE+ PROJECT NAME or Acronym
LIFE+ CarbOnFarm

Data Project

Project location	Italy
Project start date:	01/07/2013
Project end date:	01/07/2018
Total budget	€ 3,051,265
EC contribution:	€ 1,495,027
(%) of eligible costs	49.24

Data Beneficiary

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REQUIRED STRUCTURE:

1. Table of contents.

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2	2. List of abbreviations
2-3	3. Executive summary
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2. List of key-words and abbreviations (when appropriate).

CPMAS-NMR: solid state Nuclear magnetic Resonance; LCA: life cycle assessment; FT-IR. Fourier Transform Infrared Spectroscopy; GHG: green house gases; PLFA: phospholipid fatty acids; SOC: soil organic carbon; SOM: soil organic matter; THM-GC-MS: off line thermochemolysis Gas Chromatography Mass Spectrometry

3. Executive summary (max 3 pages).

1.1. General progress.

In the time span covered by the second reporting period, the progress of LIFE CarbOnFarm project, were focused on the following activities:

- ✓ completion of the activities in implementation action B.1, related to the realization of on farm composting facility at the project site of associated beneficiary Prima Luce, transfer of composting technologies and know-how to the management of associated beneficiary Prima Luce and the set-up of on farm compost production;
- ✓ continuance of acquisition of biomimetic catalyst (action B.2) for innovative SOM management
- ✓ set-up and progress of project activities included in implementation action B.3, focused on the application of sustainable SOM managements and field cultivation; the field activities have been activated in the II trimester 2014 for the University farms of Napoli (Castel-Volturno) and Torino (Tetto Frati) and for the commercial farm Grandi (Grugliasco), while the field operation at Prima Luce started in the III trimester 2014; the orchard systems for on farm compost application have been selected on IV trimester 2014 and the field activities will start on the II trimester 2015 with the on farm compost application (from Prima Luce) and the ¹³C-OC labelled compost
- ✓ continuation and further development of monitoring actions on compost (C.1) and field plots (C.2) analyses, and on data collection for LCA (C.5); activation of monitoring activities on productive sustainability (C.3), GHG emissions (C.4) and stakeholder appraisal of project objectives (C.6)
- ✓ continuation of and further development of project activities associated with the dissemination action D.1 (website), D.2 (notice boards), D.3 (workshops), D.8 (Life Networking) and activation of project action D.4 (info days at project sites)

1.2. Assessment as to whether the project objectives and work plan are still viable.

Actually no substantial modification are expected on the application and development of planned activities and no particular drawbacks may be envisaged neither with respect to the specific and/or intermediate achievements of different project actions, nor with the overall fulfilment of the project objectives

As a consequence at present, both project objectives and working plan are still viable.

1.3. Problems encountered.

The problems encountered were mainly related to the innovation represented by the realization of the on-farm composting facilities (Action B.1). The common composting structures in agricultural farms are, in fact, based on restrained *in-house* systems which require the simple achievement declaration. The extension of projected plan and the amounts and transfer needs of fresh organic materials and final compost, involved in the on farm composting activity, realized in the CarbOnFarm project, makes the administrative issues comparable with the requisites and obligations of the industrial plans. This is the first example in Campania region, of agricultural composting plan at “industrial” level and therefore it had to face with the absence of specific legislative procedure, for the corresponding sanitary authorizations. These problem were solved by a cooperative and fruitful collaboration of beneficiaries and project management with the representatives of local authorities and a continuous feedback process for an upgrading of the authorization procedures.

4. Administrative part

Following the Amendment to Grant Agreement, approved by the Commission on 06/06/2014 ((Ares 2014) 185 72 32), the original beneficiaries Terra Orti and Regione Basilicata, have been replaced, respectively, with Prima Luce *s.a.s.* and Agenzia Lucana per lo Sviluppo e l’Innovazione in Agricoltura (ALSIA). This modification do not implies any change neither in the technical nor in the financial obligations of the project. Accordingly, two partnership agreements were established between the coordinating beneficiary CERMANU and the replacing beneficiaries. In compliance with the request of the Commission sent on 20/11/2014 (Ares(2014)3875039), please find herewith enclosed the copies of Partnership Agreements in the corresponding **Annex 7.3: Partnership Agreements**

Dates of signature of partnership agreements

CERMANU-ALSIA 15/07/2014

1st payment (40% of EC contribution € 25,670.80) 18/07/2014

CERMANU-PRIMA LUCE 28/07/2014

1st payment (40% of EC contribution € 122,280.00) 24/04/2014

The technical management boards of the project is remained basically unvaried.

With respect to the initial management structure, the current administrative officer of coordinating beneficiary CERMANU is represented by Mrs Valentina Gagliotti. For the associated Beneficiary UNIBAS the actual responsible administrative officer is Dr. Giuseppe Pentasuglia

- **Project manager:** Riccardo Spaccini CERMANU

-**Technical management:** CERMANU Prof. Alessandro Piccolo; AGROSELVIT Prof. Carlo Grignani; ALSIA Dr. Rocco Sileo; CRA-ORT Dr. Massimo Zaccardelli; PRIMA LUCE Mr. Demetrio Esposito; REGCAMP Dr. Amedeo D’Antonio; UNIBAS Dr. Giuseppe Celano

- **Administrative staff:** CERMANU, Mrs Valentina Gagliotti-Administrative manager; AGROSELVIT Dr. Loredana Olivarelli-Administrative manager; ALSIA internal

administrative officers; CRA-ORT Antonio Corbisiero-Administrative manager; PRIMA LUCE Ilario Doto- Administrative manager; REGCAMP internal administrative officers; UNIBAS Dr. Giuseppe Pentasuglia-Administrative manager.

The first Inception report and subsequent requested integration, have been submitted to the Commission on 03/03/2014 and 30/04/2014.

5. Technical part

The technical aspects faced in the reporting periods were related to the following points:

- completion of on farm composting facility at project site of Prima Luce and start on farm compost production (Action B.1);
- set-up of project sites (Action B.3), involving the application of demonstrative and innovative SOM management practices and field cultivation,
- evaluation of the effect of project activities with the activation of monitoring actions on compost characterization (C.1), SOC content and soil fertility (C.2), agronomical results (C3), GHG emissions (C4), sustainability of proposed strategies (C.5). The data acquisition on public awareness on project topics is also started (C.6) with the first series of questionnaires devolved to farmers.
- The activities related to communication and dissemination were continued with the update of project website ((D.1), the attainment of notice board (D.2), start of workshops for stakeholders (D.3), info-days at project sites for students (D.4) and connection with other LIFE projects (D.8)

5.1. Actions

5.1.1. Action B.1 *Set up of a composting plant and transfer of 'on farm' composting technologies*

In line with the scheduled programme, the implementation Action B.1 was completed within the III trimester 2014 with the achievement of the on-farm composting plan at the Project site of Associated beneficiary Prima Luce and the start of the on-farm compost production. Accordingly, the transfer of composting technologies and know-how, to the management of beneficiary Prima Luce has been actually completed. The beneficiary Prima Luce is currently the main responsible for the attainment of compost and the management of the composting plan. The Action B.1 is hence focused on the attainment of on farm compost for field tests plots located in the horticultural and orchard systems

The actual composting activities is based on multiple simultaneous lines of compost production, with two main types of composts based on either vernal/summer or winter horticultural crops, and woody structural materials, using the cultural residues from agricultural activities of both, beneficiary Prima Luce and on the contribution of the other farms belonging to the farmer association. The initial amount of mature compost produced in the first six months is about 1300/1500 m³.

Please refer to the Deliverables associated with Action B.1 in the annexes (**Annex 7.1 – Economical evaluation of composting procedure, Draft of composting procedure, Report on Action B.1,**)

5.1.2. Action B.2 *Set up of laboratory facilities for the production of biomimetic catalyst*

As specified in the Inception report, the implementation of Action B.2 has been partially modified with respect to the initial objective to develop an in house synthesis of the biomimetic catalyst. In order to maintain the main objective of the innovative SOM

management practice, the CERMANU, responsible of the Action B.2, is proceeding with the acquisition of the required amounts of porphyrin for the activities included in the Implementation action B.3 at the project sites of University of Napoli and Torino (please refer to attached files in **Annex 7.4-Action B.2 invoice for biomimetic catalyst**).

This modification is not expected to produce any change, nor for the budgeted costs allocated to this Action, neither for the objectives and deadlines reported in the project. In order to maintain the initial objective of a possible develop of an in-house synthesis of biomimetic catalyst, the CERMANU is performing an agreement with the Dept. of Chemical Science and Technology of II University of Rome-Tor Vergata, already identified as possible collaboration for this issue in the proposal (pag. 46). The agreement will be submitted within the next report

5.1.3. Action B.3 Set up of project sites

The field activities associated to Implementation action B.3 started regularly at the project sites of universities of Napoli (Castel Volturno), and Torino (Tetto Frati) and at the commercial farm Grandi (Grugliasco) in the II semester 2014 (April/May). The set up of field plots were based on and the application of SOM managements on cropping fields, as indicated in the protocol included in the integration to Inception report. Maize was used at University farms while two horticultural open field crops (cabbage and lettuce) were cultivated at Grugliasco.

The field activities at Prima Luce started with the selection of field plots for horticultural crops in the III trimester 2014, the distribution of on-farm compost (October) and the field cultivation with open field horticultural crop (scarole). The project activities for two orchard system (kiwi and peach) started in the IV semester 2014 with the selection of field plots for the application of on farm compost and of 13C labelled compost.

All the field tests will continue with the annual application of SOM management practices, at the university sites of Napoli (Castel Volturno) and Torino (Tetto Frati), and at the project sites of Prima Luce, Mellone (orchards) and Grandi (Grugliasco).

Please refer to the Annex associated with Action B.3 for a report of field activities started at Prima Luce and those programmed in orchard systems and for an updating of the project activities in the Project sites of Piemonte and Castel Voturno (**Annex 7.5 – Report Action B.3**)

5.1.4. Action C1 Monitoring of composting processes and characterization of compost quality

The action was activated with the analyses on compost materials used at different project sites: compost from bio-digestate, used in field activities in Piemonte, and the on-farm composts used at Castel Volturno and Prima Luce. A detailed molecular characterization was performed with THM-GC-MC and CPMAS 13C NMR; the FT-IR and 13C-OC isotopic analyses and biomasses characterization are in progress. Although the corresponding deliverable, in the original reporting programme, was expected for end of April 2015, as indicated in the Inception report, an updating of compost analyses have been included in the present report. Please refer to the **Annex 7.6 Report Action C1** for the first results of composts characterization.

The project activities will continue with the completion of the analyses in progress and the annual characterization of compost materials used at different project sites

Milestones associated for the next reporting period:

period	milestones
III trimester 2015	Analyses on composts materials C.1 action II year

5.1.5. C2 Monitoring of soil organic carbon stabilization and the improvement of physical and biological soil fertility

The action C.2 started with the data acquisition on initial situation;

the completed analyses are:

- SOM characterization by THM GC-MS of field plots at the Project sites of Piemonte (Tetto Frati and Grugliasco) and Campania (Castel Volturno); evaluation of soil aggregate stability, SOC and total N content of, both, bulk soils and soil aggregates on initial soils for the project sites of Piemonte (Tetto Frati and Grugliasco) and Campania (Castel Volturno, Prima Luce)

the analyses in progress for initial situation are:

- SOM characterization by THM GC-MS for the project site Prima Luce; analyses of soil humic substances for the project sites of Piemonte (Tetto Frati and Grugliasco) and Campania (Castel Volturno, Prima Luce)

After the application of SOM managements the following analyses have been completed for the first year:

- soil aggregate stability for the project sites of Campania (Castel Volturno, Prima Luce)
- SOC and total Nitrogen of bulk soils and soil aggregates for Tetto Frati, and Castel Volturno

the analyses in progress are:

- SOC and total Nitrogen of bulk soils and soil aggregates: Grugliasco; Prima Luce
- SOM characterization by THM-GC-MS Tetto, Frati, Grugliasco, Castel Volturno, Prima Luce
- 13C-OC of bulk soils and soil aggregates (for Tetto, Frati, Grugliasco and Castel Volturno)
- PLFA for Tetto, Frati, Grugliasco, Castel Volturno, Prima Luce

(please refer to the Deliverables in **Annex 7.1 for Action C.2: Report for C.2 action: initial condition, Report for C.2 action: first year**)

For Action C.2 the acquisition of SOC and N data (which is under the responsibility of CERMANU) for the project sites of Grugliasco and Prima Luce (first year) was delayed for a damage of the Elemental CHN analyzer (switch-valve for gas system); the corresponding components was ordered and the analyses will be completed.

The 13C-OC content of bulk soils and soil aggregates (for Tetto Frati, Grugliasco and Castel Volturno) have been already determined by an external collaboration (please see the specific invoice in **Annex 7.7 Action C.2 quotation and invoice for 13C-OC analyses**); the corresponding evaluation of the results for the different project sites and field tests are in progress

In respect to the determination of Phospholipids Fatty Acids (PLFA), included in Action C.2, the analyses are performed on the rhizo-bulk soils sampled during the cropping cycles, with a procedure based on a time consuming multi step working protocol; in order to optimize the laboratory work and the use of different consumables, the analyses are hence started after the completion of the different project sites in order to deal with the different soil samples simultaneously, and are actually in progress.

The monitoring of the progress of project activities for the next reporting period will continue with the completion of the analyses in progress for initial situation and first year, and the start of the evaluation of the effect of SOM managements for the II year.

Milestones associated for the next reporting period:

<u>period</u>	<u>milestones</u>
IV trimester 2015	Start analyses for C.2 action II year

5.1.6. C3 Monitoring of the agronomical, phytopathological and practical sustainability of proposed strategies

This action started with the determination of crop yields, plant biomass and photosynthetic status, for the first crop cycles, at the project sites of Tetto Frati (maize crop), Grugliasco (cabbage and lettuce horticultural crops) and Castel Volturno (maize). The qualitative analyses of nutrient uptakes for the previous project sites and the evaluation of crop yields (scarole horticultural crop) at Prima Luce are in progress. Please refer to the Deliverable in **Annex 7.1 Report on C.3 Action: first year**

The monitoring of the progress of project activities for the next reporting period will include the completion of the analyses on crop yields and quality for the first year, and the start of the monitoring analyses for the productive sustainability for the II year, at different project sites

period	milestones
IV trimester 2015	Start analyses for C.3 action II year

5.1.7. C4 Monitoring of greenhouse gases emissions

The measurements of GHG emission started at the project sites of Castel Volturno with the set-up of field activities on maize crop. The monitoring of gas fluxes was performed from June to November with fixed system based on ten automated closed static chambers, placed in field test plots, connected to a Photoacoustic Field Gas Monitor (please see the corresponding Deliverable in **Annex 7.1: Report on C.4 action: first year**). The GHG emission for the second year started at the end of February for the evaluation of GHG emission on bare plots.

A laboratory evaluation of GHG emission from different compost matrices, will be activated by Agroselvit. The analyses will be performed with laboratory tests and Gas Chromatographic measurements.

Milestones associated for the next reporting period:

IV trimester 2015	Data acquisition for C.4 action II year
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5.1.8. Action C.5 Monitoring the environmental and economical sustainability of proposed strategies

The assessment of overall sustainability of project approaches is started with the evaluation of the on-farm composting facilities and initial compost production at the project site of Prima Luce .

Following the set-up of tests plots, the data acquisition on economical, agronomical and environmental impacts of project for the different cropping systems and SOM managements is started in each project sites. The analyses of the outputs is performed by the beneficiaries AGROSELVIT in coordination with UNIBAS.

In order to assess the environmental and economic sustainability software GaBi 6 was purchased, protocol for data collection were partially outlined and data related to the first year of cultivation were broadly collected.

Two PE INTERNATIONAL GaBi Databases were purchased. They are the largest internally consistent LCA databases on the market today and contain over 7,000 ready-to-use Life Cycle Inventory profiles. The first is “GaBi Professional” database: it is the standard database provided with the GaBi software. The GaBi professional database is regularly updated and is derived from industry sources, scientific knowledge, technical literature, and internal patent information creating a solid foundation for assessing your materials, products, services and processes. The second is more agricultural oriented and

it is called “Renewable raw materials” database. Renewable raw materials contains 140 processes: fertilizers, pesticides, tractors, agricultural equipment, industrial intermediate products, and different crops (corn, wheat, hemp, flax, rape seed, soybean, etc.).

Although not included in the original reporting programme, the LCA data acquisition for the on farm composting process at Prima Luve, has been included in the present report (please see the **Annex 7.8 Report Action C.5**)

The data acquisition will be performed annually for each project sites. A mid-term report on C.5 action is expected on I/II trimester 2016

5.1.9. Action C.6 *Monitoring the acquired awareness about available techniques for soil organic carbon stabilization and accumulation and bioresources valorisation*

The activities related to Action C.6 started in IV trimester 2014 with the preparation of questionnaires by associated beneficiary ALSIA, related to the actual management of agricultural residues and biomasses in the agricultural farms of Basilicata territory. The questionnaires were distributed to selected agricultural farms by the technician of ALSIA, and about 206 questionnaire were compiled and returned. The evaluation of the indications obtained is currently in progress. Please refer to the attached file in **Annex 7.9 –Action C.6** for an example of the ALSIA questionnaire.

For the application of Action C.6 in Piemonte, other specific questionnaire were conceived, by beneficiary AGROSELVIT, focused on the current knowledge about soil fertility, GHG emissions, technique of carbon sequestration, and organic fertilizer.

The questionnaire is based on the awareness about the effects of sustainable practices adopted on soil organic matter (SOM) management and in particular the effects about the compost use in agriculture. The questionnaire will collect opinion from different stakeholders: first of all the farmers, and then researcher, technicians, students, etc. Questionnaire results will be elaborated by AGROSELVIT-DISAFSA.

Questionnaire is divided in three parts: i. general information; ii. the functions and the importance of soil organic matters; iii. the compost use. General information are uniquely for farmers, and are related to the position of the farm, farms surface, farm typology (main crops and livestock), and type of agriculture (organic, conventional, integrated, conservative agriculture etc. The second part is an investigation about the awareness of SOM contents, the most important SOM functions, the most effective Good Agricultural Practices to increase or maintain the SOM content. Finally, the last part of questionnaire is related to the use of compost in agriculture, if the stakeholders could be interested to start to use the compost, if they are even interested to produce compost, and which are the weakness point of compost on agriculture farms.

The questionnaire will be used in correspondence with the workshop events.

5.1.10. Action D.1

A final website has been activated (www.carbonfarm.eu); the website is steady updated with the activities and events of the project

5.1.11. Action D.2 *LIFE+ notice boards, project leaflets, informative technical reports*

The definitive notice boards with the actual beneficiaries have been produced and distributed to each beneficiary. Please see the **Annex 7.2a Dissemination materials Action D.2 Notice boards** for the photos related to the location of notice boards as requested by the communication of the Commission Ares(2014)3875039 - 20/11/2014.

With respect to the indication included in the Inception report, an unforeseen delays was encountered for the production of the initial leaflets, related to the specific problems in the administrative procedures of public Regional Institution, (responsible for the

action) for the allocation of project funds and the completion of bid for tenders. However, the initial version of leaflets will be prepared within the deadline of corresponding deliverable reported in the proposal (01/05/2015). Other version of leaflets will be prepared for the deadlines associated to Mid Term and Final conferences.

Please find in the **Annex 7.2b Dissemination Materials Action D.2 LIFE Equipment at Prima Luce** the photos related to equipment and composting facility of Prima Luce with the LIFE logo as requested by the communication of the Commission Ares(2014)3875039 - 20/11/2014

5.1.12. Action D.3 Press Conferences and workshop/demonstration days

With respect to the expected deadline (Milestone D.3 15/06/2015), the workshop organization was anticipated in the IV trimester 2014. This timing modification was decided by the project management in coordination with the Beneficiary ALSIA, in order to comply with the interest raised by the completion of on farm composting facility and the proposed SOM management strategies, towards the involved stakeholder. Technicians, agronomists, farmers, civil servants of regional agricultural and environmental sectors of Regione Basilicata, researcher and PhD students from Agricultural Dept of University of Napoli and Basilicata, attended to the LIFE CarbOnFarm workshops. About 7 events and 11 seminars have been already performed with the involvement of the representatives of project beneficiaries and the participation of about 140 persons. Following the interest of stakeholders two additional events, not included in the original schedule, are programmed in March.

As a concomitant activity the Associated beneficiary ALSIA has activated an agreement with the Regional representatives of Agronomist Association for the official acknowledgement of the LIFE workshops as formative upgrading activity foreseen by Italian legislation for the training of Agronomists. In this respect the participation to LIFE workshops will allow the acquisition of “formative credits”.

The Beneficiary ALSIA has also started, with the contribution and collaboration of other beneficiaries, the drawing up of the on-farm composting manual.

As indicated in the proposal further workshops and training seminars will be organized at different project and beneficiary site with the involvement of corresponding stakeholders.

A selection of training seminars will be published on the corresponding section of the web site

Please refer to the corresponding **Annex 7.2c Dissemination material Action D.3 Workshops** for the completed workshop activity (program, photos, exemplificative lists of participants), copy of signed agreement with Agronomist association of Basilicata region.

The activities included in D.3 action for the next reporting period has been programmed as follow:

<u>period</u>	<u>milestones</u>
III trimester 2015	Manual for on farm composting procedure
III trimester 2015	Workshop at the project site of University of Torino
III trimester 2015	Workshop at the project site of University of Napoli
III trimester 2015	Workshop at the project site of Prima Luce

5.1.13 Action D.4 Info-days

The info-days dedicated to the student of higher schools and university courses have been carried out at the project sites of University of Napoli and Prima Luce. Further info days are programmed annually for each project sites.

Please refer to **Annex 7.2d Dissemination material Action D.4** for the photos of visiting events

The activities included in D.4 action for the next reporting period have been programmed as follow:

period	milestones
III trimester 2015	Info days at the project sites of Piemonte
III trimester 2015	Info days at the project site of University of Napoli
IV trimester 2015	Info days at the project site of Prima Luce

5.1.14. Action D.5 *Mid-term and final conference*

The beneficiary responsible (ALSIA) in coordination with the project manager and the management board has started the organization of the Mid Term conference, to be held in the I/II semester 2016.

5.1.15. Action D.6 *Layman's report*

5.1.16. Action D.7 *After Life Communication plan*

Both the D.6, and D.7 activities are expected in line with timing and objectives indicated in the proposal

5.1.17 Action D.8 *Networking activities with other LIFE+ projects*

In addition to the LIFE projects identified in the Inception report two additional contacts were activated with the project LIFE 11 ENV/PL/445-LIFE Ekohempkon and LIFE 12 ENV/IT000439-LIFE Greenwoolf. The project manager attended to the Press conference of LIFE Greenwoolf, carryng out a meeting with the project representatives on the 11th March 2014. (Please see the files enclosed in the **Annex 7.10** LIFE Networking)

As additional dissemination activities, the beneficiaries UNIBAS and Prima Luce have realized an exemplanative video on farm composting activity, for communication and didactic purposes; the video has been published on web (**Annex 7.2e Dissemination material Link for on farm composting video**)

Following this initiative, a more comprehensive version of the video will be realized for the LIFE CarbOnFarm website. Furthermore, in concomitance with the organization of D.4 activities, the beneficiaries Prima Luce and UNIBAS have conceived and realized a biodegradable package (comprehensive of LIFE and project logo and QR code) containing an aliquot of on farm compost to distribute to the visiting guests of project sites, as disseminative action linked to LIFE CarbOnFarm (**Annex 7.2f Dissemination material –Prima Luce On farm compost package**)

5.1.18. E1 *Technical planning/ Technical, administrative and financial management and Monitoring of the project progress*

Following the change in partnership structure, in order to limit drawbacks and delays for project activities, the management of Coordinating Beneficiary in collaboration with the project management board and the representatives of Associated Beneficiary Prima Luce, have provided the financial support to achieve the initial project objectives associated to the Implementation action B.1. In this respect, the allocation of the first EC

contribution to associated beneficiary Prima Luce, was anticipated with respect to the official signature of partnership agreement.

Two Project Committee Meeting were organized on the 19th June 2014 and on the 3rd March 2015, at the premises of Prima Luce, and of UNIBAS at the seat of University of Basilicata located in Matera, respectively, with the participation of all the representatives of each associated beneficiary. With respect to the Milestone indicated in the proposal (30/01/2014), the 4th project meeting was slightly postponed close to the deadline of Progress report, in order to discuss the main questions concerning the field activities and the monitoring and dissemination actions. (Please refer to the corresponding **Annex 7.11 – Project Committee Meetings**, for the minutes, photos and list of participants). The second Monitoring visit of the representative of the External Monitoring team was held on 23rd and 24th October, 2014 at the premises of CERMANU and Prima Luce.

The delivery of administrative and financial documents to the coordinating beneficiary has been properly organized on quarterly basis as minimum frequency, in compliance with the obligations included in the partnership agreements

All the various activities were steadily monitored by regular communication among the technical management board, with periodic videoconferences (May, July, September November 2014, February 2015 and in the Project committee meetings (please see **Annex 7.12 Meeting calls**)

5.2. Envisaged progress until next report.

- Continuation of on farm compost production at Prima Luce (B.1), regular acquisition and supply of biomimetic catalyst (B.2); continuation of field tests with the application of SOM management strategies at each project site.
- Completion of the analyses in progress for monitoring actions C.1, C.2 and C.3 for the first crop cycles. Start of data acquisition and analyses for the second crop cycles for monitoring Actions C.1, C.2, C.3 and C.4. Continuation of LCA evaluation of proposed strategies (C.5). Data collection on the public awareness on project background, strategies and objectives (C.6).
- Continuation of dissemination activities with annual organization of workshops and info days meetings; attainment of on-farm composting manual and first version of project leaflet; organization of Mid-term Conference (II semester 2016)
- The submission of Mid-term report is expected for March 2016

- Planned actions should also be indicated in the Gantt chart used to illustrate progress:

Tasks/ Activities	2013				2014				2015				2016				2017				2018			
	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T

5.3. Impact:

Environmental Policy & Governance: Indicate as appropriate the impact of your project so far on the environmental issues tackled. Indicate your estimations as to what the impact of your project could be if other stakeholders applied your approach/technology.

After the first period of LIFE CarbOnFarm project, the main direct effect may be associated with the completion of the on-farm composting plan and, as a consequence, with the economical and environmental valorisation of recycled biomasses from agricultural activities, which, previously, were always allocated as wastes with economical expenses and the important indirect undervalued environmental question, associated with the losses of organic carbon related with the missing of agricultural reuse of organic biomasses. This aspect has already produced an impact on the local territory raising the interest of local stakeholders in the achievement of composting systems to recycle the organic residues, with the involvement of Beneficiary UNIBAS for the technical advice and support (please see the following point).

Indirect impacts: Indicate any indirect impacts of the project (e.g. local authorities near the project may have been inspired by the project to invest time/money or adopt the project's approach to the conservation/environmental issue in question)

The listed stakeholders, following the visit to the LIFE CarbOnFarm composting facilities at Prima Luce, have required a collaboration with the beneficiary UNIBAS for the realization of composting systems:

Centrale a biogas – Eboli (SA)

Azienda zootecnica Sava - Eboli (SA)

Azienda zootecnica Barlotti – Capaccio (SA)

As additional impact of project activities, the web diffusion of LIFE CarbOnFarm project has raised the attention of other researchers on project objectives and strategies. As an example please see the **Annex 7.13 Student application of training activity** for the application submitted by a student of Wageningen University.

5.4.Outside LIFE: Summarise the different actions taking place outside the framework LIFE project (i.e. not financed by LIFE) but that are complementary to the project and add to its impact (if applicable).

For the project activities located at the project sites of University of Napoli, the compost is obtained by the on farm composting facility which started its activity independently from the LIFE CarbOnFarm project. However the effective utilization of the on-farm composting systems, has opened the possibility from local livestock farms to allocate the residual biomasses for an annual amounts of about 1800/2200 tons, of cattle and buffalo manure, thereby offering a valuable economical and environmental alternative option to the problem related with the disposal of organic residues classified for National legislation as special wastes. Moreover an additional important advantage for the livestock, associated with the removal of cow manure, is the sanitization involved by the aerobic composting process with respect to extremely dangerous microorganisms for animal disease such as the brucellosis.

6. Financial part

6.1 Costs incurred (summary by cost category and relevant comments).

Fill in the following table concerning the incurred project costs:

Budget breakdown categories	Total cost in €	Costs incurred from the start date to 31.01.2015 in €	% of total costs
1. Personnel	1513725	281535	18.6
2. Travel and subsistence	43040	1351	3.1
3. External assistance	643110	60383	9.4
4. Durable goods			
Infrastructure			
Equipment	30000	9697	32.3
Prototype	266200	263811	99.1
5. Land purchase / long-term lease			
6. Consumables	349540	44525	12.7
7. Other Costs	26700	910	3.4
8. Overheads	178950	2905	1.6
TOTAL	3051265	665117	21.8

- With respect to some discrepancies in the percentage of the budget spent for the Financial form – F3 External assistance and in some of the monitoring actions, please consider the following point: in the F3 form the public beneficiaries CERMANU, AGROSELVIT and CRAORT have allocated the budget for the high qualified personnel specifically hired for the required expertise in the monitoring activities. Part of the contracts have been activated and, in compliance with the reporting rules, the corresponding paid amounts are currently monthly recorded in the financial statement. However, for the internal rules of these public beneficiaries, the related global amounts, have been already allocated for the project activities and transferred to the central administrations. For instance, the global amount already assigned by the CERMANU in External assistance, for the action B.3 and for the monitoring actions C.1, C.2, C.3 and C.4, and allocated to the central University administration, is about Euro 141000, while only Euro 26151 are included in the financial tables for the corresponding posts. This upsetting between the assigned resources for project activities and the recorded amounts in the Financial statement will clearly affect the threshold of total costs incurred for the mid-term report.

- in respect to the costs allocated in the original proposal, for Action A.1 (technical planning) please consider the following questions:
 - in order to solve the initial administrative problems related to the modification of Grant Agreement, a slight larger resources of F.1 (personnel) originally allocated in Action E.1, have been anticipated in Action A.1
 - some resources originally allocated in Action A.1 by the beneficiaries AGROSELVIT and UNIBAS, were not exploited within the original deadline of action A.1. These costs, included in the financial forms F3 (External assistance) and F6 (Consumables), were

associated with the technical organization of Actions C.4 and C.5 and with compost acquisition for the project sites of Piemonte (Action B.3). The actions C4 and C5 have been organized, and the costs, originally included in technical planning, should have to be re-allocated to the respective posts for Action C.4 (Euro 10000 UNIBAS) -*Consultancy for Wifi network of the automatized soil respiration systems* and C.5 (Euro 8442 AGROSELVIT) *Consultancy for LCA analyses*, and maintained in F.3 External assistance. These modifications will not imply any delay or technical modification for the project activities

In respect to the costs allocated for compost acquisition, since the compost material is furnished by Marco Polo company, the residual costs have been moved to Action B.3 (Euro 2702 AGROSELVIT) for the annual compost transportation to the project sites of Piemonte and maintained in the Form F6 consumables

Based on these requested modifications, the corresponding amounts for Actions A.1, B.3, C.4, C.5 and E.1 have been already modified in the following financial table with respect to the columns “projected final costs” and “remaining”

- for the Action B.2 the CERMANTU (please see the explanation in the corresponding technical part) is performing an agreement with the Dept of Chemistry of II University of Rome, in compliance with the disposition of art. 8 of Common Provision. Accordingly with this modification, following the indications included in the art. 15.2 of Common Provision, an aliquot of the costs included in the form F6 Consumables, will be possibly moved to form F3 External assistance for an amount of Euro 15.000. The corresponding posts was not yet modified in the financial tables provided in this report
- The 30 % threshold value of total costs is expected to be reached at February 2016

Please fill in the following additional table (recommended). When compiling the information please refer to Form B of the proposal:

Action number and name	Foreseen costs	Spent so far	Remaining	Projected final cost
Action A1 Technical planning	63862	45705	0	45705
Action B1 Set up of a composting plant.....	401840	312909	88931	401840
Action " B.2 Set up of biomimetic catalyst	97340	41134	56206	97340
Action B3 Set up of project sites	342153	71756	273099	344855
Action C1 Monitoring of composting processes	172045	4323	167722	172045
Action C2 Monitoring of SOC stabilization.....	231698	8994	222704	231698
Action C3 Monitoring of the agronomical , phytopal..	292405	30253	262152	292405
Action C4 Monitoring of GHG emissions	278753	21433	267320	288753
Action C5 Monitoring the environmental	130261	16826	121877	138703
Action C6 Monitoring the acquired awareness...	17800	1001	16799	17800

Action D1 Project website	33030	7400	25630	33030
Action D2 Life+ notice boards, project leaflets,.....	8720	5055	3665	8720
Action D3 Press Conferences	236256	25329	209698	236256
Action D4 Info-days (to students)	33547	2843	30704	33547
Action D5 Mid-term and final conference	118890	3967	114923	118890
Action D6 Layman's report	36210	/	36210	36210
Action D8 Networking activities	19780	3108	16672	19780
Action E1 Technical, administrative.....	357725	58948	295790	354738
TOTAL	2872315	662212	2210103	2872315

7. Annexes

7.1 Deliverables: Action B.1 *Economical evaluation of the composting procedure*; Action B.1 *Draft of standard composting procedure*; Report on B1 action; Report for C.2 Action: *Initial situation*; Report for C.2 Action: *first year*, Report for C.3 Action: *first year*; Report for C.4 Action: *first year*

7.2 Dissemination materials:

7.2a Action D.2 Notice Boards; 7.2b Action D.2 LIFE Equipment at Prima Luce; 7.2c Action D.3 Workshop, 7.2d Action D.4; 7.2e on farm composting video <https://www.youtube.com/watch?v=-H-QsYfsaU>

7.2f Prima Luce on farm compost package

7.3 Partnership agreements

7.4 Action B.2 Invoice for biomimetic catalyst

7.5 Report Action B.3

7.6 Report Action C1

7.7 Action C.2 Quotation and invoice for 13C-OC analyses

7.8 Report Action C.5

7.9 Action C.6 Alsia questionnaire

7.10 LIFE networking

7.11 Project Committee Meetings

7.12 Meeting calls

7.13 Student application for training activity