

SoilCare Gender Equality Third Report (P4)

Authors: Heleen Claringbould
and project partners

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Project coordinator:	Wageningen Environmental Research (WEnR)
EU project representative & coordinator of the project:	Dr. Rudi Hessel - (rudi.hessel@wur.nl) +31 317 486 530
Project manager(s):	Erik van den Elsen (erik.vandenelsen@wur.nl), Simone Verzandvoort (simone.verzandvoort@wur.nl), Falentijn Assinck (falentijn.assinck@wur.nl)

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Principle Author(s):	Heleen Claringbould and project partners
Principle Author e-mail:	info@corepage.org
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No.	Participant organisation name	Abbreviation	Country
1	Wageningen Environmental Research	WEnR	Netherlands
2	University of Newcastle upon Tyne	UNEW	United Kingdom
3	Katholieke Universiteit Leuven	KUL	Belgium
4	University of Gloucestershire	UoG	United Kingdom
5	University Hohenheim	UH	Germany
6	Research Institute for Knowledge Systems	RIKS	Netherlands
7	Technical University of Crete	TUC	Greece
8	Joint Research Centre	JRC	Italy
9	University of Bern	UNIBE	Switzerland
10	Milieu LTD	MLTD	Belgium
11	Norwegian Institute of Bioeconomy Research	NIBIO	Norway
12	Bodemkundige Dienst van België	BDB	Belgium
13	Aarhus University	AU	Denmark
14	Game & Wildlife Conservation Trust	GWCT	United Kingdom
15	Teagasc	TEAGASC	Ireland
16	Soil Cares Research	SCR	Netherlands
17	Instituto Politecnico De Coimbra	IPC/ESAC	Spain
18	National Research and Development Institute for Soil Science, Agrochemistry and Environmental Protection	ICPA	Romania
19	University of Padova	UNIPD	Italy
20	Institute of Agrophysics of the Polish Academy of	IAPAN	Poland
21	Wageningen University	WU	Netherlands
22	University of Pannonia	UP	Hungary
23	Swedish University of Agricultural Sciences	SLU	Sweden
24	Agro Intelligence Aps.	AI	Denmark
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26	University of Almeria	UAL	Spain
27	Fédération Régionale des Agrobiologistes de Bretagne	FRAB	France
28	Scienceview Media BV	SVM	Netherlands
29	Milieu Consulting SPRL	Milieu	Belgium

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Summary

EU supports scientific projects like SoilCare about Soil Improving Cropping Systems, to improve cropping in a more sustainable way, including a gender equality approach with equal opportunities for men and women. Gender equality is about equal opportunities. Women are generally less represented in agriculture than men (EU 2016). In this report the gender equality approach and results are described, in numbers and positions from the participating research teams and numbers and roles from the involved stakeholders. Some attempts are made to see if gender equality influences the implementation of the SICS.

More specifically, this 3rd report is about gender equality data in the 4th reporting period (RP) (March 2020-August 2021) and includes comparisons with the data from the other reporting periods in the project (RP 1-3). The data for this report were gathered in May this year, together with the consortium partners and their stakeholders, through a questionnaire that was sent to all the participants. It includes a few extra questions to the study sites about their stakeholder workshops and/or final online meetings which were held in cooperation with WP3.

The numbers in the staff throughout the project were fairly balanced in gender terms, the division of the positions has a stubborn gender gap: structural a few more men among the management and more women among the early researchers and PhD candidates. Among the stakeholders there is also a gender gap of one third women and two third men. More men were invited. The women among the SoilCare stakeholders participated proportionally a little more in the case study site workshop. Men participated more in the final workshops than in the start of the project.

Concerning the roles of the involved stakeholders, women are well represented in research, less among advisors, technicians, policy makers and farmers, land managers and landowners. The influence of women on the implemented SICS are low, and more marginal in the estimations of the land users per study site, than in the estimations of women researchers. There is scarcity of women in agriculture, but how come? We try to find answers through questioning the SoilCare participants and their stakeholders and make use of some explanations from theories. The gender gap in agriculture can be explained where there is no structural exclusion, when equal opportunities are there, that there are still informal processes of exclusion, ("occupational exclusion").

Except from more women involvement among farmers, policy makers, and agronomists, the question is also about the content of the women's input. Women sometimes express a different interest in sustainability than men. It is hard to prove, but it keeps being heard that women think about education and soil health and men are pragmatic about yield and economic improvement. The balanced combination of these inputs leads to a more holistic approach.

The conclusion for a follow up project therefore would be to start with a similar diverse consortium of men and women who are well divided as team managers and WP leaders, who will attract stakeholders from different organizations, to gather diversity in numbers and responses. Inviting the stakeholder men and, (where possible,) with more equal numbers of women, and for workshops on SICS implementation, to hold gender disaggregated evaluation questionnaires, to know what is important to men and women farmers, advisors, and policymakers, to be supported in their role to improve the sustainability of the soil, of the cropping systems and the farming.

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1. Introduction

The overall aim of SoilCare is to assess the potential of soil-improving Cropping Systems (SICS¹) and to identify and test site-specific SICS that have positive impacts on profitability and sustainability in Europe. The gender equality aim of SoilCare is to analyse the gender aspects regarding the organizational structure of the envisioned project as well as project contextual issues, e.g., in relation to soil-improving cropping systems, and the adoption of these. To work towards this aim, data gathering was organized in three phases of the project, after the 1st RP including the stakeholder workshops, then in the 3rd RP, when the study site stakeholders were asked to monitor the SICS trials, and third, in this 4th RP, in exchange with WP3, when the final study site workshop meeting was held.

In the 1st project reporting period (RP), trainings were organized for the study site stakeholder workshop facilitators by WP 3 in cooperation with the gender equality approach. For the data gathering a questionnaire was prepared and used in the three mentioned project moments. The gender disaggregated data about the SICS decision making and SICS implementation, were data from the study sites gathered by WP 4 and shared and analysed for the gender equality reporting in the 3rd RP.

In this 4th RP (March 2020-August 2021) the final data are gathered and are compared with the former data, to see if there are changes during the project on the participating teams and the stakeholders with whom they worked with in a case study site. It is about numbers and balance between the involved men and women, and about the roles from the women and men in the institutes as well as the roles and influence from the stakeholders on decision making and implementation of the SICS. After this introduction (section1), comparisons are being made in this report in numbers, positions, and percentages, about the staff reported in [section 2](#).

About the stakeholder participation, an estimated stakeholder influence on SICS implementation is given. This is a summary and an analysis from the data used in the 2nd gender equality report, combined with the final information gathered about stakeholder participation and roles in [section 3](#).

With a discussion that is combining theory, outcomes, and communication, further thinking on gender equality in agriculture is challenged ([section 4](#)). These four paragraphs will be wrapped up by the conclusions and recommendations ([section 5](#)).

¹ The term ‘cropping system’ refers to crop type, crop rotation, and the agronomic management techniques used on a particular field over a period of years. (SoilCare 2017a, Nafzinger, 2012; definition used in the SoilCare project).

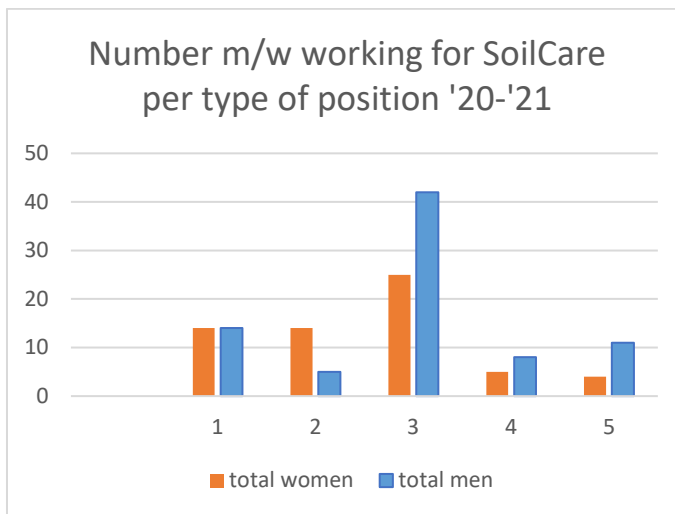
2. Research teams and positions

For this 4th project RP another questionnaire was sent to the SoilCare participants in May 2021, about the numbers and tasks of the involved staff, ([Annex 1](#)). It was stated that if there was no response, the staff has not changed. 20 partners from 28 responded with changes in their team. Numbers per participant are in [Annex 2](#).

2.1 Numbers and positions staff 4th RP

See table below, according to the numbers given by the project partners. (2020-2021)

Table 2.1.1



Type of position: 1= other staff; 2= early researcher, < 4 years or PhD student; 3= experienced researcher, 4 years>PhD holder; 4= scientific team leader or WP leader; 5= scientific manager

SoilCare '20-'21

position number	1	2	3	4	5	tot
total women	14	14	24	6	4	62
total men	14	5	42	8	11	80

In this 4th RP in position 4 in the table, 6 from 13 team leaders and/or WP leaders are women and from the scientific managers 4 women out of 15.

With the given numbers we can conclude that the gender balance in the SoilCare staff is relatively good. From the total staff of 142 there are 80 (56%) men and 62 (44%) women. There are ten teams with as many men as women.

If we look at the academic positions 2-5 (excluding position 1, "Other staff"), there is still a gap to bridge. We see more women (14) than men (5) among the early researchers (position 2) and that the gender gap is relatively bigger in the highest position, scientific manager (5), where 4 from 15 managers are women (27%).

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2.2 Changes in the staff throughout the project

Comparing the 4th RP with the staff information from the 1st Rp ('16-'17) and in between ('18-'19).

It is often assumed that gender balance is a self-organizing process, if women want to, they will participate or that it is a matter of time to get the PHD students in higher positions. However, the numbers of the past 5 years show different that there is still a persistent gender gap in the positions where the decisions are made, which, in proportion, shows the figure of a scissors (figure 2.2.1).

After the first gender equality inventory in the SoilCare research teams, there were 42% women, that is close to a real balance. The challenge was to keep the balance (especially the women) in the project, and keeping the excellent quality of the project team, which was managed well, with the actual 44% women and 56% men in total.

Numbers from the first reporting period were:

SoilCare '20-'21

position						
number	1	2	3	4	5	tot
total women	14	14	24	6	4	62
total men	14	5	42	8	11	80
total per						
position	28	19	66	14	15	142
% men	50	21	64	57	71	56
% women	50	79	36	43	29	44

SoilCare '18-'19

position						
number	1	2	3	4	5	Total
total women	19	10	38	9	4	80
total men	18	5	56	11	12	102
total per						
position	37	15	94	20	16	182
% men	49	33	60	55	75	56
% women	51	66	40	45	25	44

SoilCare '16-'17

position						
number	1	2	3	4	5	Tot
total women	16	8	37	9	4	74
total men	15	5	56	11	15	102
total per						
position	31	13	93	20	19	176
% men	48	38	60	56	79	58
% women	52	62	40	44	21	42

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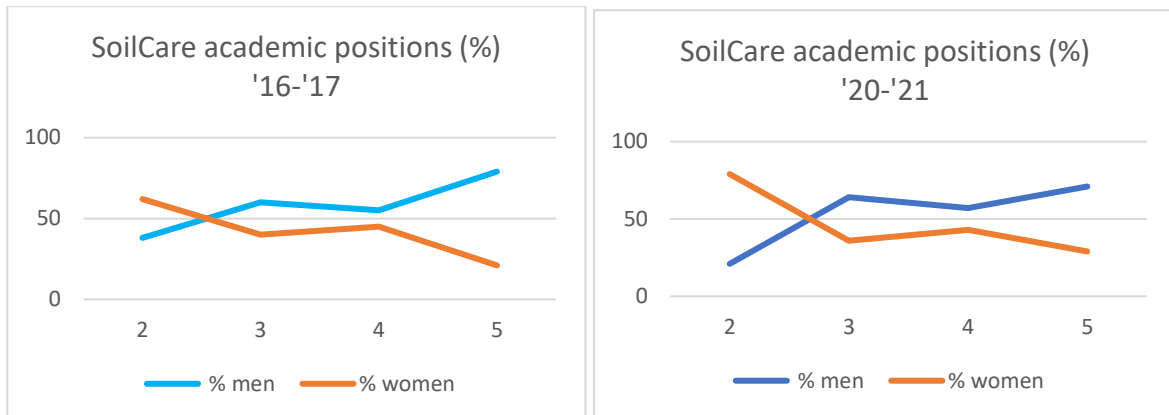


Figure 2.2.1 This “scissors” figure is showing up in the first and in the 4th RP.

Often the scissors turn up where the proportion of men and women is compared in academic careers, (She Figures '18, figure 2.2.2; Gender SMART 2020, figure 2.2.3).

Figure 6.1 Proportion (%) of men and women in a typical academic career, students and academic staff, EU-28, 2013-2016

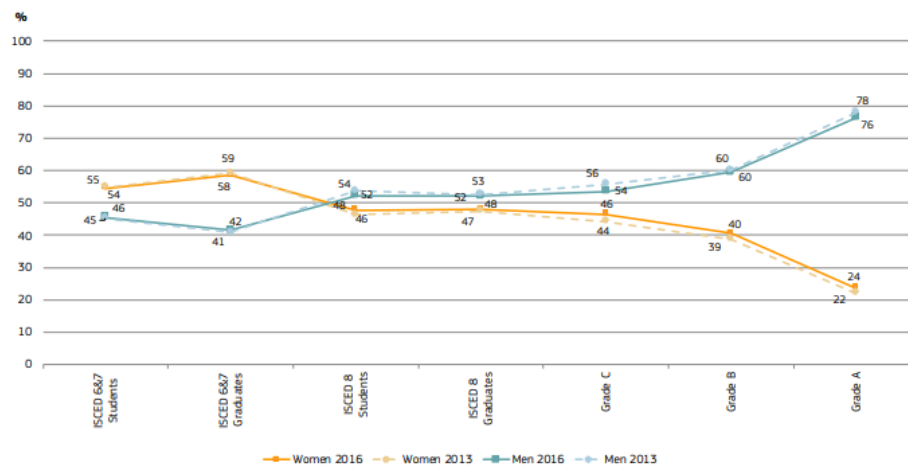


Figure 2.2.2 SHE figures 2018.

This project has received funding from the European Union Horizon 2020 Research and Innovation Programme under Grant Agreement N° 823348

Gender SMART
SCIENCE MANAGEMENT OF AGRICULTURE & LIFE SCIENCES, INCLUDING RESEARCH AND TEACHING

Ester Cois

Some Key-Lessons (So Far)

Detecting the resistances encountered so far has been a **useful starting point** to understand where and how to focus the actions and strategies necessary to develop an approach as participatory as possible in the implementation of the GEP, on different levels:

- PARTICIPATION:** Starting with the involvement of the Hub of “allies” as a support, advice and expertise channel within the various areas of UniCa as an institution;
- CO-LEARNING:** Collecting “best practices” from other national and international universities in order to have valuable benchmarks and to create effective indicators for measuring the progress in gender equality development within UniCa.
- CO-WORKING:** Organizing Fab-Lab and Training Courses mainly targeted to the teaching and administrative staff and to the student body in order to focus on specific issues related to gender equality within the University, as a workplace and as a high educational and research context, and to reach a set of sustainable action proposals together (co-creation approach).

GEP IS A PROCESS: not an end point but a **trigger point** for a sustainable, lasting, widespread, shared structural and systemic **gender-sensitive change** in Academia

% of MEN and WOMEN in a typical academic career

Figure 2.2.3 Gendersmart.eu 2020

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Some changes were registered in the SoilCare staff teams. From '16-'18 In total there are 6 more women (74>80), and same number of men (102), from '18-'20 there were 18 women less (80>62) and 22 men less (102>80), making the group and the gender gap a little smaller.

The changes could be traced and checked on the gender impact, but since the balance looks quite well and there are no big changes noticed, it does not seem necessary to put a lot of extra effort to find out where the gender differences come from. Only the type of position is an indicator and shows that the management positions are being practiced by most men (this 4th RP 11 out of 15 and in the 1st RP 15 out of 19). In some teams it is also the institutes that have a goal to improve the opportunities for academic careers of women, which is an important structural progress for EU. An example is the Athena Swan awards in Great Britain as presented in Newcastle University (Athena Swan Newcastle University, 2020). Also, with the EU project Gender SMART, where WUR is involved, the partners are working on the design of a gender sensitive culture, four points of action define the main course here, which are: (1) developing a gender smart culture, (2) developing equal career support measures, (3) reshaping decision making and governance, and (4) integrating gender in funding, research, and teaching. (Gendersmart.eu, 2021).

In summary:

The SoilCare staff in the 4th RP changed a little, there were 142 staff members working for SoilCare, 62 (44%) women and 80 (56%) men, less (18 women and 22 men) than in the 1st and 3rd project period (respectively 176 and 182 staff members), but almost similar in gender balance (42-44% women and resp. 58-56% men). There are some imbalances in the 'type of positions', throughout the project (and in other projects and position measurements), more men than women are in the higher positions, more women among the less experienced researchers. These differences can change with institutional approaches. Comparisons in proportions help to visualize these differences, the "Scissors" for example.

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3. Stakeholder gender data

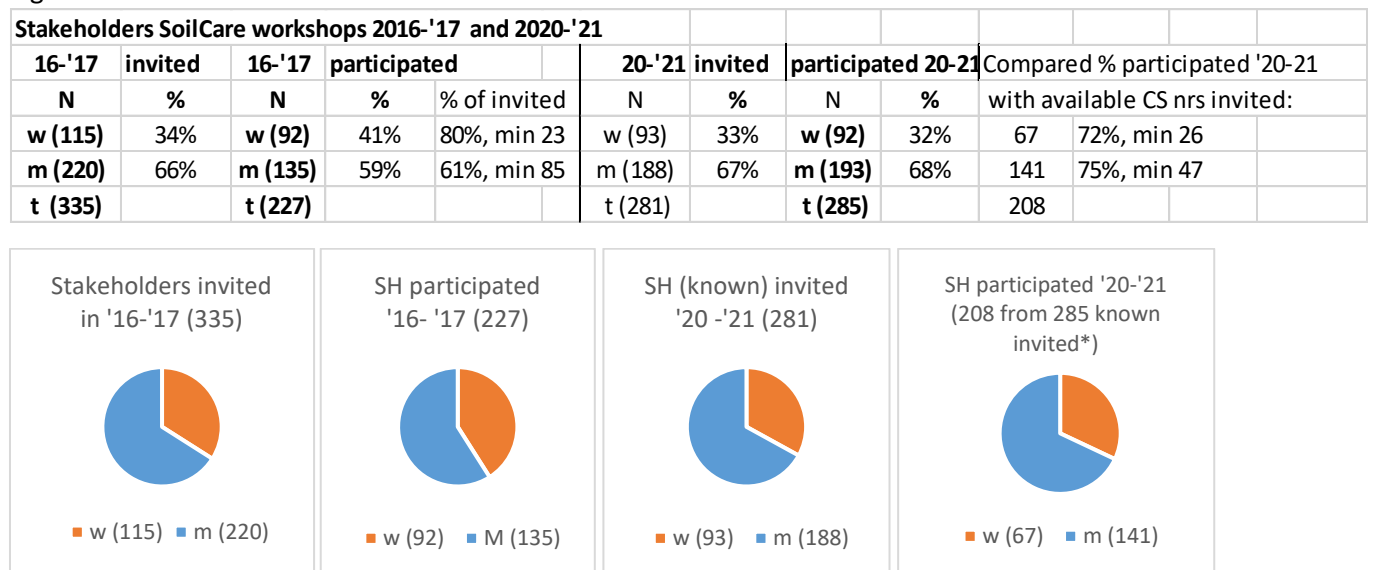
The data that are used in this section, are gathered by the study site leaders, and related to the interactive stakeholder workshops. The given data here are not big in numbers, they show us however the gender differences about the SoilCare stakeholders. Agriculture is a male dominated branch (EU 2016), so to gather a balanced proportion of stakeholders in the subject is a challenge.

3.1 Stakeholders numbers

At the first case study site workshops we counted 227 participants (92 women and 135 men), in the final reporting period we counted 285 (92 women and 193 men), numbers per study site are in [Annex 3](#). The proportion of participating women dropped from the 1st to the 4th RP from 41% to 33%. The invitation level for women remained 33%. More men participated in the 4th RP workshop, than at the 1st workshop.

The numbers of invited women and men at the study site workshops, were compared in both project periods with the number of participating stakeholders (figure 3.1). Some numbers for the final workshops are missing. With the open online invitations and meetings this is a new challenge.

Figure 3.1



*The number of participating stakeholders in de Case study workshops (208) is compared with the invited numbers that are available (281). There are more numbers available from case study sites on participation at the workshops (285, 92w, 193m).

The level of participation is high, the average of the difference between invited and participating stakeholders in the two project periods, shows higher for women (76%) compared to the men (67%) (Table 3.2).

Table 3.2

Average '16-'21						
	women invited	Women participating	average % women participating	men invited	men participating	Average % men participating
2016 - '17	115	92	80	220	135	61
2020 - '21	93	67	72	188	141	75

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	208	159	152:2=76%	408	276	136:2=68%
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3.2 Stakeholder roles

About the role division we can be more specific in this report because of the precise responses for the 4th RP. From the stakeholders that took part in the workshop, most are researcher (30%), then farmer, landowner, land manager is together 20%, and advisor, technician, and agronomist together 20%, students 20% and policy makers 10% (Figure 3.2.1). Here a division is made among the roles of men and women (figure 3.2.2). All roles per study site are in [Annex 4](#).

Figure 3.2.1: 4th RP

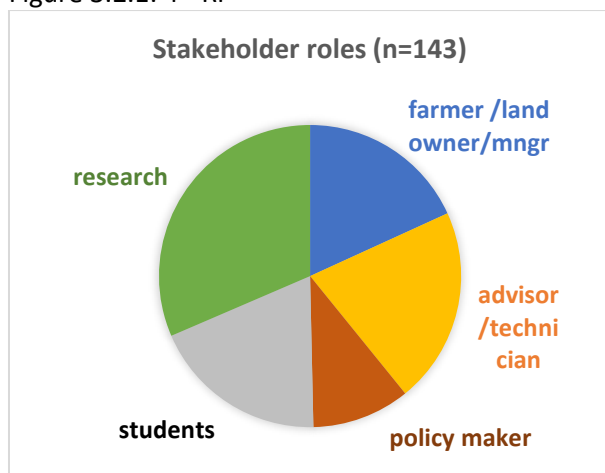


Figure 3.2.2: 4th RP

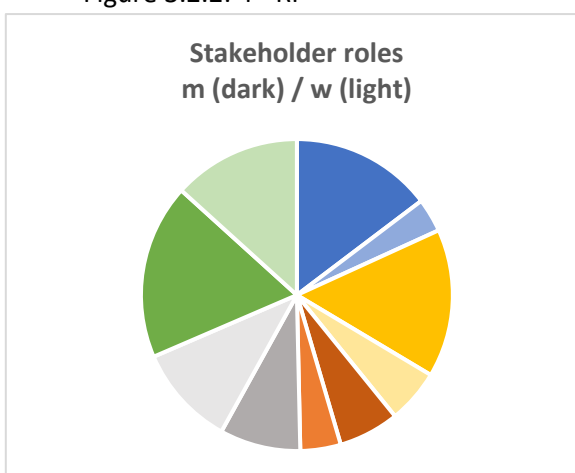


Table 3.2.1 Roles in numbers 4th RP

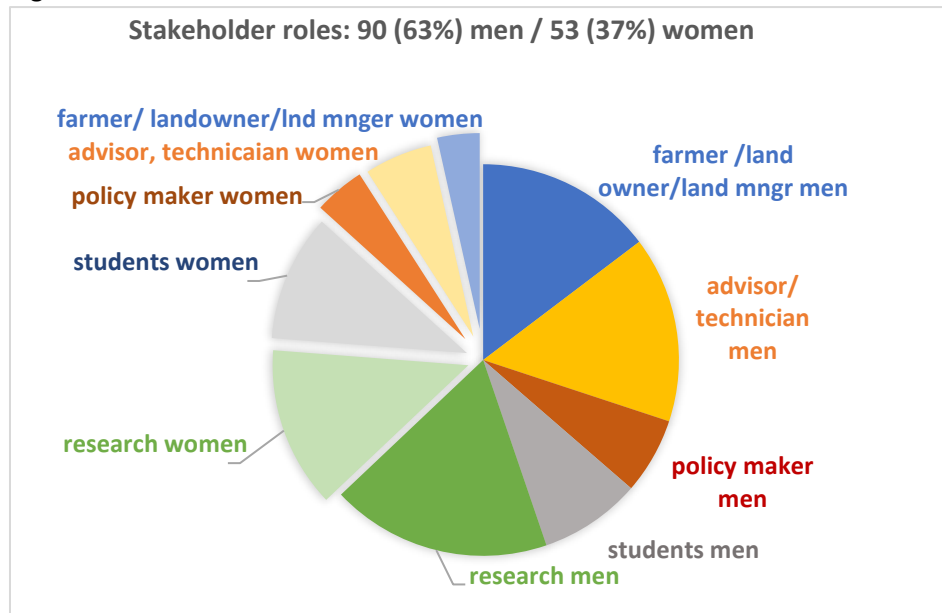
21	farmer /landowner/land manager men
5	farmer/ landowner/land manager women
22	advisor/technician men
8	advisor, technicaian women
9	policy maker men
6	policy maker women
12	students men
15	students women
26	research men
19	research women
143	Total roles stakeholders

From the 26 involved farmer/landowner /land managers, 5 were women. From 15 involved policy makers, 6 were women, from 25 advisors 7. With these small numbers, it is not useful to talk in percentages, but when we add the numbers of men and women, including researchers and students, about one third is woman.

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The same role division is visualized by clustering the women and men roles. Women are 37%, men 73% of the total, as visualized in figure 3.2.3 for the 4th project period.

Figure 3.2.3: 4th RP



These are the gender disaggregated numbers gathered in the 4th RP. To visualize the change in roles with SICS implementation, we would need another 5-year project on SICS implementation to gather more comparable numbers.

3.3 Gender estimates in SICS implementation

There was exchange of information with WP4, about the decision making and implementation of the SICS, which was gathered in WP4 with the study sites (SoilCare 2019), and the gender-disaggregated results are analysed and presented in the 3rd RP, which has been elaborated in the 2nd gender equality report, (SoilCare '20), this is summarized in this section.

Who decides about which SICS to try, and who works on the implementation? Stakeholders were asked to estimate to which percentage was done by men and which percentage by women. The respondents were divided in land users and researchers/advisors. The results are given in the next paragraphs.

For the question on gendered **decision making** about Soil Improving Cropping Systems (SICS), 43 respondents, **23 land users** responded from 9 different European countries from the study sites involved in SoilCare. Seven were men only and 6 were couples. The same question about decision making concerning SICS was asked to the **researchers and advisors**, of whom 20 responds came from 10 European countries from the SoilCare study sites, 13 men and 9 women (7 countable, because two did not mention percentages).

Half of the land users say that the women have a minor influence on the decision making. The decision making is according to their estimations, mostly done by men (80-100%).

The respondents who estimated about the percentages of implementation of the SICS done by men, and which percentage by women, say that there are hardly women involved in the implementation of the SICS. According to the land users in average, 94 % of the SICS is implemented by men and 6 %

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by women. The same question to the researcher/advisors of the SoilCare study sites, show a little more women in the implementation of the SICS, in average percentages it is 82% men and 18% women. Women researchers say, on average, that the percentage of implementation of SICS by women is 26%, again a little more optimistic about the role of women here.

Table 3.3.1: the average percentages m/w in SICS decision making and implementation, as estimated by land users and researchers.

land user	%m	%w
decision SICS	87	13
implementation SICS	94	6
researchers/advisors	%m	%w
decision SICS	69	31
implementation SICS	82	18
men res/adv	%m	%w
decision SICS	75	25
implementation SICS	87	13
women res/adv	%m	%w
decision SICS	57	43
implementation SICS	74	26

The given data are not big in numbers or in outcome, it shows however that gender disaggregated data are more specific and can show us some differences that would be good to act upon. What we see in the results in table 3.3.1 is that there is a big gender disbalance in the decision making and even more in the implementation of the SICS. To gather a balanced proportion of stakeholders in the subject is a challenge also after the project is finished.

- Although it is possible that the (women) staff have influence on the participation of women stakeholders, the numbers that we gathered give no evidence on that. What we do see here is the difference in perception of researchers and land users about the women doing the decision making and the implementation of the SICS. The lower estimation of land users, probably coming from their experience, may have a negative effect on involving women or keep women informed, whereas the higher estimations of the researchers may reflect their perception of the possibility for women to act on the SICS implementation and support them. It might help as incentive to motivate women in agriculture and look for opportunities to change towards more engagement. It is a two-way process.

3.4 The impact of SICS implementation on stakeholder roles

It was not part of the gender equality research to see whether gender equality has an impact on SICS implementation measures. We did ask, however, whether the intended changes towards soil improvement and agronomic techniques have an impact on the actual role of the farmer men and women? Or, as the question is in the 4th RP questionnaire, ([Annex 1](#)): **What is the impact on the roles of the men and women stakeholders through the SICS implementation?**

This question has been asked in the 1st RP and in the 4th RP. This question is often ignored in the responses, or the impact is denied or there is no impact observed in the response:

“No difference between women and men” (11²), “No specific impact.” (12), “Non identifiable.” (14); “The SICS implemented did not affect the gender relations.” (19) “The women researchers and technicians contributed to aspects of interest of the technical implementation in lines like that of the men. The policy makers and land managers contributed questions of socio-economic interest to the SICS, given that the farms in the area are family-type and this component is fundamental, dividing the work and management of the farms, in many cases, equally between men and women.” (26)

Little difference is made between actual roles of men and women concerning SICS development as:

“Women from the extension service responsible for the experimental field at Øsaker. Men from NIBIO responsible for the experimental field at Solør.” (11) And as role for the men: “SICS – organic waste utilization such as spent mushroom substrate.” (20)

About the future roles of men and women concerning SICS development:

“Farmers (men) can successfully implement the SICS because knowledge of their impact from economic, social, and environmental point of view. Local public authorities can better evaluate the quality of soil from economic, social, and environmental dimension. SICS can be organized like demonstrative plots for researchers, students, and advisory service. The women will develop further the research on the impacts of SICS on soil quality. The results will be disseminated by advisory service for SICS implementation in practice.” (18)

A few gender-related observations were shared:

“During the workshop, the female participants provided various comments related to sociocultural aspects and biodiversity which the males had not noticed” (26).

“Women were transmitting knowledge/information, men were into adaption of SICS, showing best practice; women are more: “enthusiastic players”; men are more: “conscious players””. (22).

Especially these final remarks show the subtle differences and added value, that may occur during a workshop and not everywhere being noticed or easily be overruled by discussions that others prevail.

² The numbers between brackets refer to the participant numbers, see also [Annex 3](#)

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Stakeholder data in Summary:

For the stakeholders who participated in the workshops or online meetings, the numbers were: 285 in the 4th RP, which, compared to the 1st RP, was an equal number of women, 92 (32%) and a larger number of men 193 (68%). In the 1st RP, where there were 227 stakeholders of whom 92 (41%) women and 135 (59%) men.

There were 33% women invited and for both men and women, in the 4th RP, there were about 25% less participants than there were invited. In the 1st RP 80% of invited women participated, which was noticeably higher than the 61% of men participating. This comparison could only be made for the study sites that also could sent the invitation numbers.

Earlier estimations (in the 3rd RP), about women involvement in SICS implementation differed from 6%, according to the land users, to 43% by women researchers and advisors.

Around 50% of the stakeholders in the responses here, are researchers and students. Farmers and advisors are each 20%, and policy makers around 10% of the stakeholders. Most of the involved women are researcher and student, followed by advisor and policy maker and farmer. From the 26 involved farmer/landowner /land managers, 5 were women.

The impact of SICS implementation on the roles of the farmer men and women is hardly recognized, nor proven. Still remarks from women (that were noted) are about biodiversity, sociocultural aspects and transmitting knowledge, where male remarks noted were about SICS adoption and best practices.

4. Discussion and communication

Gender equality is in the numbers, and even there, it is not always clear why we should pay attention to it. It depends on the way the numbers are presented. It is normal, to have more men than women in agriculture. But why? There are reasons why we do certain tasks and avoid other tasks. Reasons to do so are often related to culture, religion, stereotyping, peer groups, glass ceilings, and economy or politics. It is “beyond the scope of the SoilCare project”, a study site leader once responded.

So, with the project on soil improving cropping systems, do we adapt to this culture, or do we organize opportunities and information dissemination for a broader range of stakeholders?

4.1 Questioning occupational disclosure, inclusive education, and economic drivers

The balance of numbers of men and women in the SoilCare project is good, it gives insight in the equal access of gender in the consortium. An easy way to check this is through the gathering of disaggregated data, numbers of men and women. This is generally³ clear. And although small, the imbalance in positions is stubborn and does not turn in favour of women easily. How to make a change for crop improving and sustainable soils, and does a gender balanced consortium make the difference for a new generation of farmers and farming?

There are three topics being discussed in this paragraph, supported with a few theories.

- Why gender equality in the SoilCare consortium?
- Inclusive education necessary for SICS implementation?
- Sustainability as driver for engaging farmer women?

Gender equality in the SoilCare consortium

The numbers of men and women in the SoilCare consortium are well balanced. Even though this is part of the process to become an EU subsidized project, it is a challenge to get there and keep it balanced throughout the project. SoilCare does well. What makes it a challenge? Because for example, the practice of having more men in science used to be normal. Due to the EU gender equality policies, it is more normal to have a well gender balanced consortium. Among the stakeholders in agriculture, such a balance is lacking and as mentioned before, agriculture is a male dominated branch (EU 2016). Research argues that agriculture has evidence for gendered occupational closure (Shortall, 2019):

(...) women remain structurally excluded from the occupation (...). For example, in 2013, 10.5 per cent of farmers in the UK were women, 9 per cent in Ireland and 12 per cent in Sweden⁴. The economics and legal frameworks vary widely, but in each place cultural norms prevail, and women experience occupational structural closure. In the few cases where women do farm, they still face practices of occupational closure. Male inheritance of land is the key factor shaping women's participation in agriculture and the public perception of farming as a male activity. EU policies primarily target the owner/ holder of the farm. (Shortall, 2019)

³ The number of births where the baby is intersex has been reported to be as low as 0.018% or as high as roughly 1.7%, depending on which conditions are counted as intersex. Sex assignment at birth usually aligns with a child's anatomical sex and phenotype. (Wikipedia, 2021)

⁴ Eurostat 2017

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Structural exclusion is when women do not inherit land, are under-represented in farming organizations, and under-served by agricultural training. While equal opportunities legislation limits the scope of formal strategies of closure, informal processes can ensure occupational closure is maintained. (Tomlinson 2006)

Informal processes are processes of discrimination, exclusion, and harassment. (Shortall, 2019)

With the project we work on inclusive agricultural development. By being gender balanced, research teams show the possibility of change also in the gender-unbalanced agricultural society. With equal opportunities, for women and men, and with equal numbers they both have a voice and can be heard, which enables women to use their full potential and show their own interests in the decisions. Comparing this for example with our invitation and participation level among stakeholders, from the 33% invited women, they were as much (or proportionally even a little more) participating in the workshops as the men. Keeping the stakeholders informed about developments in knowledge, and involved in other projects, even after the project is finished would help to keep up the good spirit.

Inclusive education for SICS implementation

How can stakeholders be prepared to participate in changes towards soil improvement and agronomic techniques as SICS? In the first RP the role of women in knowledge and teaching in the domain of agriculture was mentioned:

“A better understanding of issues related to soil improving cropping systems is useful for women stakeholders. The potential solutions from SoilCare may be further developed in the research areas and included by local teachers in their lessons for students as theoretical knowledge applied in practise.”

This is a particularly important remark.

A lot has been written about women's lower access and participation in agricultural training and education (Dunne, 2020): (Haugen and Brandth, 1994 [NOR]; Shortall, 1996 [IRE]; Alston, 1998 [AUS]; Liepins and Schick, 1998; Pini, 2002 [AUS]; Brandth, 2002 [EU]; Safilios-Rothschild, 2006 [EU]; Trauger et al., 2008, 2010 [US]; Brasier et al., 2009 [US]; Istenic, 2015 [SLO]; ScotGov 2017, 2019). The articles affirm that agriculture still is a challenging branch for women to participate, also a theoretical discourse on women and agricultural education, saying that:

“The social construction of agricultural knowledge reflects a certain understanding of the work and role of women on farms” (Shortall 1999).

“Our findings also suggest that women desire education on a variety of agriculturally-related topics. Programs targeted to women that focus on the traditionally gendered farm tasks of bookkeeping, domestic work or farm family safety overlook how women's identities are multiply constructed through work, relationships and personal history.” (Trauger, 2008).

Education and involving women in training is important, considering their needs for change. The gender imbalance is also cultural and economic embedded. That brings us to the third question.

Gender diversity and work for more sustainable soils and farms

Key economic differences between men and women, have a big impact on the choices made by women and farmer families and their course of life. Factors such as access to land, education, organization, and policy are driving these differences. As affirmed in the following phrase:

Legislation in Norway, is designed to be gender neutral, following the equal rights requirements. It is not supposed to matter whether you are a woman or a man. Our analysis shows that young women farmers represent a change toward a new work role for women in

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farming. They have become like men farmers in many important aspects of farming such as vocational training, technological know-how, and union membership; however, important aspects of the existing gender system are being preserved. Young women farmers still have the main responsibility for domestic work; their income from farming is less important for the household than their husband's; and, compared to men farmers, their farm income is less. (Haugen, 1994)

In the first RP, about labour time and the implementation of the SICS a SoilCare stakeholder says:

"The adoption of SICS is expected to minimize labour effort in maintaining good soil quality in farms. This will offer an incentive to women to participate equally in farming processes."

General conclusion after the SICS implementation about costs:

"For most experiments yields of the control and the SICS were similar, and the socio-cultural analysis showed a modest impact on sustainability. However, most soil-improving cropping systems incur extra costs, which are not always compensated by extra benefits, so that for several SICS the profitability suffers without financial support." (SoilCare D5.3)

The higher costs may even have a bigger impact on the women's roles, that should be researched.

In paragraph 3.3, we can see that the estimations are not high about equal participation of women in farming, most of the land users and the researchers say that it is mostly men that perform the implementation of the SICS, and one of the stakeholders mentioned that implementation of the SICS requires higher labour input, than with the regular crops, because:

"One must buy cover crop seeds and an additional sowing operation is needed." And: "The choice of cover crop species decides the amount of extra workload. Additional workload is for example less if the crop dies during winter. If the crop survives the winter, additional pesticide application or tillage operation is required." On top of that, the same stakeholder mentioned that: "additional work falls to periods when the workload is already remarkably high. Additional labour also poses an economic risk." Still, she says, that the female farmers in their study site (11) are interested in cover crops.

These reactions open options for change. We want to support our stakeholders in their attempts for sustainable soils and economic reliable farming options, not pull them back in "normal" uses, where women are underrepresented and excluded, because they are women.

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4.2 Communication about gender equality

The communication about gender equality started with a presentation in the 1st meeting with the consortium in Leuven and presentations about gender equality in the two moderator workshops about stakeholder engagement. The workshops were presented in the first SoilCare Newsletter.

How stakeholders are involved in SoilCare

At the heart of the SoilCare project are the stakeholders in each of the 16 study site countries. These stakeholders, comprising farmers, advisors, NGOs and policy-makers and others, will be involved in selecting and evaluating soil-improving cropping systems to be tested in the project.

Study site partners have been busy engaging with their local stakeholders over the last year. The first task was the establishment of multi-stakeholder advisory panels. With training and guidance from the project team, a stakeholder analysis was conducted in close collaboration with these stakeholder advisory panels, to identify relevant workshop participants, including those who may typically be marginalised from decision-making processes.

Training workshops were run in Newcastle (UK) and Bucharest (Romania) by Liz Oughton and Mark Reed (Newcastle University) with consultants, Steven Vella and Heleen Claringboud to equip the study site partners to work more effectively with stakeholders. The training focused on preparing for three workshops with stakeholders to identify, discuss and select soil improving cropping systems that can improve both profitability and sustainability. Selected systems will be trialed in the field, later in the project. The workshop also provided participants with skills in:

- Stakeholder analysis
- Workshop design
- Facilitating workshops
- Dealing with conflict

Take home messages

Mark Reed, Professor of Socio-Technical Innovation at Newcastle University explained the purpose of the training. "I think a lot of researchers believe that because they can chair meetings in a University setting, that they will be able to run workshops successfully with stakeholders. The problem is that when we work with people outside academia to co-develop research, we often have to work with people who are very different to us, and who may have quite different knowledge and opinions to us. Researchers in the SoilCare project need to be able to work effectively with a wide range of stakeholders, from farmers and their advisors to conservation NGOs and businesses. For this to work, we need to learn how to put ourselves in these other people's shoes, and learn to think and feel as they do. This empathy is, for me, essential if we want to work successfully with stakeholders."

Liz Oughton is a Principal Researcher at Newcastle University working on interdisciplinarity between social and natural sciences; academia, government and the private sector. She emphasized the importance of building trust with stakeholders: "Working with others who have different training, experiences and objectives in their day to day lives and work requires building trust between all members of the team. We each need to recognize that our own experience is limited and have to place ourselves in a position where we can accept that others construct and experience the world differently. This is a difficult thing to do and may include accepting local knowledge, reflecting on our own methods of working and recognizing that we have only a limited understanding of the disciplinary work of others. For work in these circumstances to succeed we must listen actively to other opinions building trust across the team."

Building on this, Steven Vella, an independent consultant employed by Newcastle University, explained the importance of tailoring participation to local contexts: "Participatory processes are rarely, if ever, prescriptive – they need to account for the diversity of stakeholders taking part. In the room, you will have participants with different backgrounds, different kinds of 'knowledges' and expertise, which can be experience-based (local or indigenous knowledge), more formal (such as scientific knowledge) and even a mixture of both. When large projects such as SoilCare encompass such diverse socio-political, cultural, geographic and biophysical differences, awareness of the local contexts become even more important, because trust needs to be built and maintained both at each local site and also between the partners spread all over Europe."

While the aims of the project may be the same across all study sites, the local contexts and priorities of stakeholders (including those of the scientists) may vary, even significantly, depending on many factors. And even at a local level, what may be important for some may not be high on the agenda of others. This is why the facilitation of participatory processes needs to be tailored for each study site's local context; what may be appropriate in one country may yield the opposite result in another. That is why during these training sessions we have emphasized a number of core principles that we believe should underpin participatory processes rather than taking a 'tool-kit' approach."

Finally, Heleen Claringboud from consultancy company Corepage, reminded participants about the importance of diversity: "Diversity of stakeholders in the project context is about involving different stakeholders to design equal opportunities and to enrich each other with useful knowledge, expertise and skills. This may include differences in gender, age, education, and also the role, topic, sector and area the stakeholder works for. When the stakeholder is (representing) an institute it includes the size of the stakeholder. Diversity is also about more broad categories such as social-economic and political status, religion, tradition and culture. It is therefore important for researchers to interact with the level of influence and interest that the stakeholder will have in the research."

For more details please contact Mark Reed mark.reed@newcastle.ac.uk

Foto: First SoilCare Newsletter; Moderator training about the engagement of stakeholders in study sites

There were no new gender tools developed. In the 2nd report was referred to several examples of gender tools being developed, which can be viewed in the [References and links](#) (by CARE 2016; CCAF, CGIAR 2016; EIGE, EU 2020; FAO, CEDAW 2013). However, priority in RP3 was given to the information that was gathered, the results of the questionnaires from WP4, a SoilCare staff questionnaire, an interview, and a global FAO forum.

SoilCare website - On the SoilCare website the gender equality **reports** can be viewed, by typing: "gender" in the "Search" button, on the SoilCare website home page.

Another gender related communication subject concerning the SoilCare webpage, is the gender disaggregated information about the of the SoilCare **website visitors** the website use, as far as registered, is well balanced between genders. We do not know more about the users their background or country, only that the access is free and when one has access to the internet one can visit this SoilCare website, so apparently as many women as men are interested in the content.

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Another communication-activity about gender equality concerning SoilCare was an article In the FAO's Global Forum on Food Security and Nutrition, this was the result of joining in a discussion on mainstreaming gender for sustainable soil management. On the global FAO forum, there are diverse reactions from all over the world. Although they differ from experiences and policies, they are almost all convinced that gender must be considered for a solid sustainable soil management approach. In the text was referred to the SoilCare project because the examples give us insight in the minority of women stakeholders in agricultural projects and agricultural practice in general, but also in the positive willingness of women to participate in the stakeholder workshops when they are being invited (FAO forum 2019), the ideas were reflected in a report as follows, see also [Annex 5](#).

5. Conclusions and recommendations: equality, inclusion, diversity

Working towards gender equality is an essential part of European research and innovation policy. The SoilCare project endorsed this policy. A gender equality approach was used in the consortium staff.

The data gathering was organized in three phases of the project, after the 1st RP including the stakeholder workshops, then in the 3rd RP, when the study site stakeholders were asked to monitor the SICS trials, and third, in this 4th RP, in exchange with WP3, when the final study site workshop meeting was held. To get to these conclusions we used three similar questionnaires throughout the project with all the consortium partners about the gender numbers and positions in the project teams. In this final reporting period, extra questions for the study site partners were added, as in the first RP. It was about the invitation and participation numbers from the case study site stakeholders. Also, the gender disaggregated numbers and roles of the stakeholders were asked and the impact on the stakeholder roles with the implementation of the SICS.

5.1 Conclusions

SoilCare gender balance

- There is a reasonable balance in the number of men and women that are involved in the project staff, the total staff has 142 people of whom 80 (56%) are men and 62 (44%) are women. The academic positions in percentage show more women than men among the early researchers and the gender gap is proportionally bigger in favor of men in the highest position, scientific manager. These differences can change with institutional approaches. Comparisons in proportions help to visualize these differences, the “Scissors” for example.
- Among the participating stakeholders at the study site workshops there is structural disbalance. In the final reporting period, we counted 285 participants, in total, 92 women and 193 men; At the first study site workshops there were 227 participants (92 women and 135 men). The proportion of participating women dropped from the 1st to the 4th RP from 41% to 33%. More men participated in the 3rd than the 1st study site workshop.
- The invitation level for women remained 33%, men 67%. In the first workshop, a large proportion of invited women participated (80% compared to 60% of the men). In the workshops in the 4th RP, this proportion was almost the same for men and women (72% women, 75% men), on average still the women that were invited were participating proportionally more (80%+72%) than the men (60%+75%), respectively (76% and 68%).

Results SICS decision making and implementation by men/women.

In the 3rd reporting period of SoilCare the gender balance and gender roles in the project are described. Also, the decision making on Soil Improving Cropping Systems by men and women as valued by land users/farmers and researchers/advisors. Except from the percentages, it is

interesting to see, how the responses are different between roles (land users and researchers/advisors) and gender (men and women).

- In all responses (43 total) the majority estimates that, who decides on the SICS are men. Researchers estimate that the decision making on SICS is more balanced between men and women than the land users, women researchers even more than men researchers.
- From the point of view of land users, there are hardly women involved in the implementation of the SICS (6%).
- No significance proven, but interesting for further research is that women researchers estimated a higher input from women in the decision making and implementation of the SICS than men researchers and way higher than (men) land users. What we do see here is the difference in perception of researchers and land users about the women doing the decision making and the implementation of the SICS. The lower estimation of land users, probably coming from their experience, may have a negative effect on involving women or keep women informed, whereas the higher estimations of the researchers may reflect their perception of the possibility for women to act on the SICS implementation and support them. It might help to motivate women in agriculture and look for opportunities to change towards more engagement. It is a two-way process.

Do SICS influence the labour participation of women?

- Some comments from the stakeholders in the questionnaires refer to the labor effort to SICS implementation. In the 1st RP a SoilCare stakeholder says that SICS are expected to minimize labor effort in maintaining good soil quality in farms and thus offering an incentive to women to participate equally in farming processes. Most of the land users and the researchers say that it is mostly men who work on the implementation of the SICS, and that implementation of the SICS requires higher labor input. Because the SICS also require time to invest, buy, saw, etc. Whether this will become an incentive for women to participate in the farming processes on the long term, requires more research.

Gender roles among workshop stakeholders

- Around 50% of the stakeholders in the responses here, are researchers and students. Farmers and advisors are each 20%, and policy makers around 10% of the stakeholders. Most of the involved women are researcher and student, followed by advisor and policy maker and farmer. From the 26 involved farmer/landowner /land managers, 5 were women. From 15 involved policy makers, 6 were women, from 25 advisors 7.
- The impact of SICS implementation on the roles of the farmer men and women is hardly recognized, nor proven. Many SoilCare stakeholders perform roles in agriculture, these are mostly done by men, other stakeholders are from advisory services and women especially work on communication and policy making, men also in retailing. Agriculture still is a challenging branch for women to become involved. The role that women have as an agronomist or a researcher or professor, as shown amongst the SoilCare study site stakeholders in the first RP, is about these identities and the exchange of knowledge and understanding of the important sustainable influence of the SICS on the quality of the soils, for both men and women farmers. These women agronomists, researchers and even policy

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makers, are examples for the farmer women and in their role, they can clarify and perform to their needs and identities.

5.2 Recommendations

To keep the agricultural branch with common future perspectives, it is good to be aware of the gender (social) balance. One can get there by gathering information from men and women stakeholders about ownership, views, and perceptions of land use and exchange about their experience with soil-improving cropping systems and agronomic techniques.

It is important for researchers and advisors, to also inform in their advice, they might have influence on the decision making or the implementation, or want to make decisions, or become the farmer when “the” farmer is not at the farm. To prevent stereotyping in advance, the invitations for the workshops should, in principle, be directed to the (man and woman) farmer, or even to the farmer family when also the younger family members start to become farmer.

For gender equality in this project, we gathered data from men and women stakeholders, sometimes in the interviews there is also a young person involved. It is good, also in an early stage to be aware of equal gender opportunities. Therefore, a general recommendation for developing sustainable and healthy soils, is to focus also on the young, future men and women farmers, who can be supported with subsidies and suggestions about the promising soil improving technologies to be developed in the project and beyond and to be mentioned to (men and women) policy makers.

From the project it would be helpful to invite and involve the women like the men are being invited and involved, even though the women are not the farm owner or decision maker (yet). The education, also ongoing adult education, should fit more to their (potential) role, interest, and identity.

And in general; give the women extra support and confidence to work in higher positions. Believe in women’s abilities, that are equal and different compared to men, in science and in agriculture.

Ideas can be given follow up in proposals for the next generation of Gender equality strategies for EU in the 2021 -2027 programming.

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Annex 1 The questions

Questions gender equality in SoilCare EU project final reporting 2021

1. All participants: Could you give the numbers for the type of position from the project staff of your institute, in the 4th reporting period (March '20 – April '21) in table 1, if there were changes compared to the 3rd RP? (See Annex 1)

Table 1: Type of positions within your SOILCARE project team, please fill the numbers

		Number of Women	Number of Men
Researcher	Scientific manager / coordinator		
	Scientific team leader / work package leader		
	Experienced researcher (> 4 years and/or PhD holder)		
	Early researcher (<= 4 years and/or PhD student)		
Other	Other staff, i.e.		
Total number of women and total number of men in your team working for the SOILCARE project			

2. Participants with a case study site; could you answer the questions in the table 2?
 (Annex 2 shows the numbers that were already shared with WP3, still some to be added).

Table 2: Stakeholder numbers and role in SICS implementation

Responses to question 2.1-2.5	women	men	Total
2.1 How many stakeholders were invited to the final workshop or online meeting?			
2.2 How many stakeholders were participating in that final meeting?			
2.3 What roles did the men and women stakeholders have in the SICS implementation?*			
2.4 What is the impact on the roles of the men and women stakeholders through the SICS implementation?**			
2.5 Remarks.....			

* Researcher, advisor, farmer, student, policy maker, land owner, land manager, etc.. Fill the roles for men and women separately.

**For example, did the women gain time to spend more on other tasks? Please explain.

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Annex 2 SoilCare staff in numbers and type of position ('20-'21)

SoilCare'20-'21	Country	(5)w-Scientific manager	(5)m-Scientific manager	(4)w-Scientific teamleader/WP leader	(4)m-Scientific teamleader/WP leader	(3)w-Exp res (> 4 y a/o PhD holder)	(3)m-Exp res (> 4 y a/o PhD holder)	(2)w-Early res (<= 4 y a/o PhD stud)	(2)m-Early res (<= 4 y a/o PhD stud)	Total Women academic	Total men academic	Total academic	(w) Other staff	(m) Other staff	Total Other	Total Women	Total '21	compared to 3rd RP	
1. WER	NL		2		2	1	6	1		2	10	12			2	2	2	14	
2. UNEW	UK						1	1		1	1	2					1	2	
3. KUL	BE				1		2	1		1	3	4	1	1	2		2	6 w-1, m-1	
4. UoG	UK			1		1		2		4		4					4	4 w +1	
5. UH	DE	2							1	2	1	3	1	1	2		3	5	
6. RIKS	NL			1			1			1	1	2					1	2	
7. TUC	GR		1				2	1		1	3	4					1	4 w-1,m-6	
8. JRC	IT																	m-4	
9. UNIBE	CH				1	2	2		1	2	4	6					2	6 w-1	
10. Milieu LTD	BE			1				3		4		4	1		1		5	5	
11. NIBIO(Biof.)	NO		1			2	2	1	1	3	4	7	1		1		4	8	
12. BDB	BE	1	1	1		1		1		4	1	5		3	3		4	8 m-1	
13. AU	DK					2	4	1		3	4	7	1	1	2		4	9	
14. GWCT	UK		1			2	1			2	2	4					2	4	
15. Teagasc	IE			1	1					1	1	2					1	2	
16. SCR	NL																		
17. ESAC	PT		1			1				1	1	2					1	2	
18. ICPA	RO			1		2	2			3	2	5	4	1	5		7	10 w-14, m-7	
19. UNIPD	IT		1			1			1	1	2	3		2	2		1	5	
20. IAPAN	PL					1	2			1	2	3					1	3 w-2,m-1	
21. WU	NL					2	3	1		3	3	6					3	6 w+2,m+1	
22. UP	HU				1	1	2	1		2	3	5	3	2	5		5	10 w-2,m-1	
23. SLU	SE		1				3				4	4						4	
24. AIA	DK		1		1	1	1			1	3	4	2		2		3	6	
25. VURV	CZ		1			2	3			2	4	6					2	6	
26. UAL	ES				1	2	4			2	5	7					2	7	
27. FRAB	FR	1					1		1	1	2	3		1	1		1	4	
28. Science View	NL																	m-2	
Total											114				28		142	w-18, m-22,	
Tot m			11		8		42		5					14					80
Tot w		4		6		24		14		48			14				62		
											66			14			80		80

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Annex 3 Stakeholders in study site workshops in numbers ('16-'21)

SoilCare EU project Workshop nrs invited, participating												
Participant		year>	WS '16 invited		WS '16 participating		WS '20 invited		WS '20 participating			
Number*	Study site	Country	Women	Men	Women	Men	Women	Men	Women	Men	total '21	missing nr
1 (12)	Flanders	BE	10	18	7	5	6	9	3	5	8	
2 (11)	Akershus	NO	6	14	4	6	11	19	11	11	22	
3 (22)	Keszthely	HU	5	10	5	10	12	38	5	33	38	
4 (9)	Frauenfel	CH	1	8	1	7						CH
5 (13)	Viborg	DK	5	10	5	10						DK
6 (14)	Loddngtn	GB	3	17	3	15	8	21	4	11	15	
7 (5)	Tachenha	DE	7	30	5	20			8	17	25	**
8 (18)	Draganest	RO	5	10	4	7	12	18	5	8	13	
9 (19)	Legnaro	IT	1	8	1	8	7	24	7	23	30	
10 (20)	Szaniawy	PL	50	50	41	14	15	10	14	8	22	
11 (17)	Caldeirao	PT	2	18	1	13	8	21	7	21	28	*11
12 (7)	Chania	GR	8	13	4	8	8	17	6	12	18	
13 (23)	Orup	SE	3	2	3	2			10	30	40	**
14 (25)	Prague-Ru	CZ	2	4	1	2						CZ
15 (26)	Almeria	ES	2	5	2	5	6	11	5	9	14	
16 (27)	Brittany	FR	5	3	5	3			7	5	12	**
Total			115	220	92	135	93	188	92	193	285	
* Number Case Study, (between brackets, Participant number)												
** missing "invited" numbers												
*11 the numbers are from the 2020 workshop, the final meeting participants were online, about 50, gender unknown, invited widely.												

Stakeholders SoilCare workshops 2016-'17 /2020-'21													
16-'17	invited		16-'17	participated		20-'21 invited		participated 20-'21		Compared participated '20-'21			
	%	Nr		%	Nr		%	Nr	%	Nr	with available nrs invited:		
w (115)	34%	115	w (92)	41%	92	80%, min 23	w (93)	33%	93	w (92)	32%	92	67 72%, min 26
m (220)	66%	220	M (135)	59%	135	61%, min 85	m (188)	67%	188	m (193)	68%	193	141 75%, min 47
		335			227			281			285	208	

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Annex 4 Roles men and women from Stakeholder Workshop ('20- '21)

SoilCare stakeholder numbers final workshop 20-'21																					
Number*	participating		women	men	total	roles >	research men	research women	farmer /land owner men	farmer women	advisor/technician/Agro men	adv women	policy maker men	policy women	students men	students women	private company men	private cie women	other/not known** , nature org	Other, nature, water women	total
	Name																				
1 (12)	Flanders	Belgium	3	5	8		2		1		1	1	1	2							8
2 (11)	Akershus	Norway	11	11	22														22		22
3 (22)	Keszthely	Hungary	5	33	38		1	2	2	1	1	1	1	1					28		38
4 (9)	Frauenfeld	CH																			
5 (13)	Viborg	DK																			
6 (14)	Loddington	GB	4	11	15		1	1	1	1	1	1	2						5	2	15
7 (5)	Tachenhausen	DE																			
8 (18)	Draganesti	Romania	5	8	13		1	3	4		1	1	1		1	1					13
9 (19)	Legnaro	Italy	7	23	30		8	2	6	1	4	1	2	1	2	3					30
10 (20)	Szaniawo	Poland*	14	8	22		2	5	2						4	9					22
11 (17)	Caldeirão	Portugal	7	21	28		2	3	1		8	1	1		5	2	4	1			28
12 (7)	Chania	Greece	6	12	18		5	2	2	1									8		18
13 (23)	Orup	SE																			
14 (25)	Prague-Ruzyně	CZ																			
15 (26)	Almería	Spain	5	9	14		4	1	2	1	2	1	1	2							14

Annex 5 FAO forum report



About this document

This document summarizes the online discussion *Mainstreaming gender for sustainable soil management*, held on the FAO Global Forum on Food Security and Nutrition (FSN Forum) from 23 September to 25 October 2019.

The discussion was facilitated by Ilaria Sisto and Ronald Vargas from FAO and aimed to collect views from a wide range of stakeholders about the relations between gender equality and sustainable soil management (SSM). Participants' contributions fed into the draft of the 'Guide on gender and sustainable soil management' prepared by the Regional Soil Partnerships, the Intergovernmental Technical Panel on Soils, and the Social Policies and Rural Institutions Division of FAO, with input from gender and soil management specialists.

Discussion participants shared their views on the relation between SSM and gender equality, and discussed the distinct roles women, men, boys and girls play in it. Furthermore, they identified some of the main gender-based constraints that hinder the uptake of SSM and contribute to soil degradation, and shared ideas on approaches that could help overcome such barriers. Participants also discussed actions aimed at promoting gender equality that need to be prioritized in the context of fostering SSM.

During the online discussion, participants from 28 countries shared 38 contributions. The topic introduction

During the online discussion, participants from 28 countries shared 38 contributions. The topic introduction and the questions proposed, as well as all contributions received, are available on the discussion page: www.fao.org/fsnforum/activities/discussions/soil-gender (p3)

RESOURCES SHARED BY PARTICIPANTS

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Annex 6 Poster Gender Equality SoilCare Policy Meeting (24 June '21)

