

Participatory on-farm trials were successfully used in SOLID-project

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SOLID | Sustainable Organic
and Low Input Dairying



On-farm trials as a scientific research means

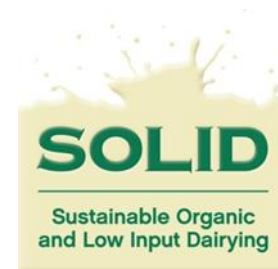
In many cases on-farm research has been a rapid way to give practical answers and increase both organic production and common knowledge in the topic.

Approach could vary from system level to field trials in order to answer scientific questions, execute research and development as well as carry out data broadcasting.

The most important is to find the best way to answer the actual needs and questions.



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SOLID Participatory on-farm research had a high diversity

Biodiversity in Austria

Long term pastures with herbs and Farmer field schools for climate friendly farming in Denmark

Home-grown protein production in Finland

Grazing behaviour, milk yield and quality in Greece

Climate friendly organic milk production in Italy

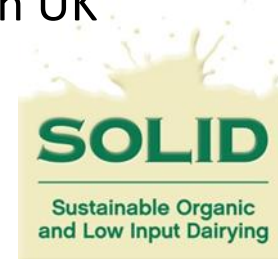
Alternative feeds for ruminants in Romania

Use of by-product in feeding strategy in Spain

Leaving calves suckling with milking cows, Diverse swards and mob grazing, Diverse swards farm comparison, Soil and pasture productivity, Discussion group to reduce antibiotic use and Cow nutrition and health in UK



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The involvement of farmers could vary from

On-farm trials that are designed and carried out by researchers on farms.

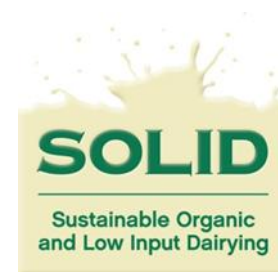
through to

Research in which farmers set the agenda, designed the assessment methods and carried out the assessments themselves.

It is important that the outcome measures are of meaning and high value both to researchers and farmers



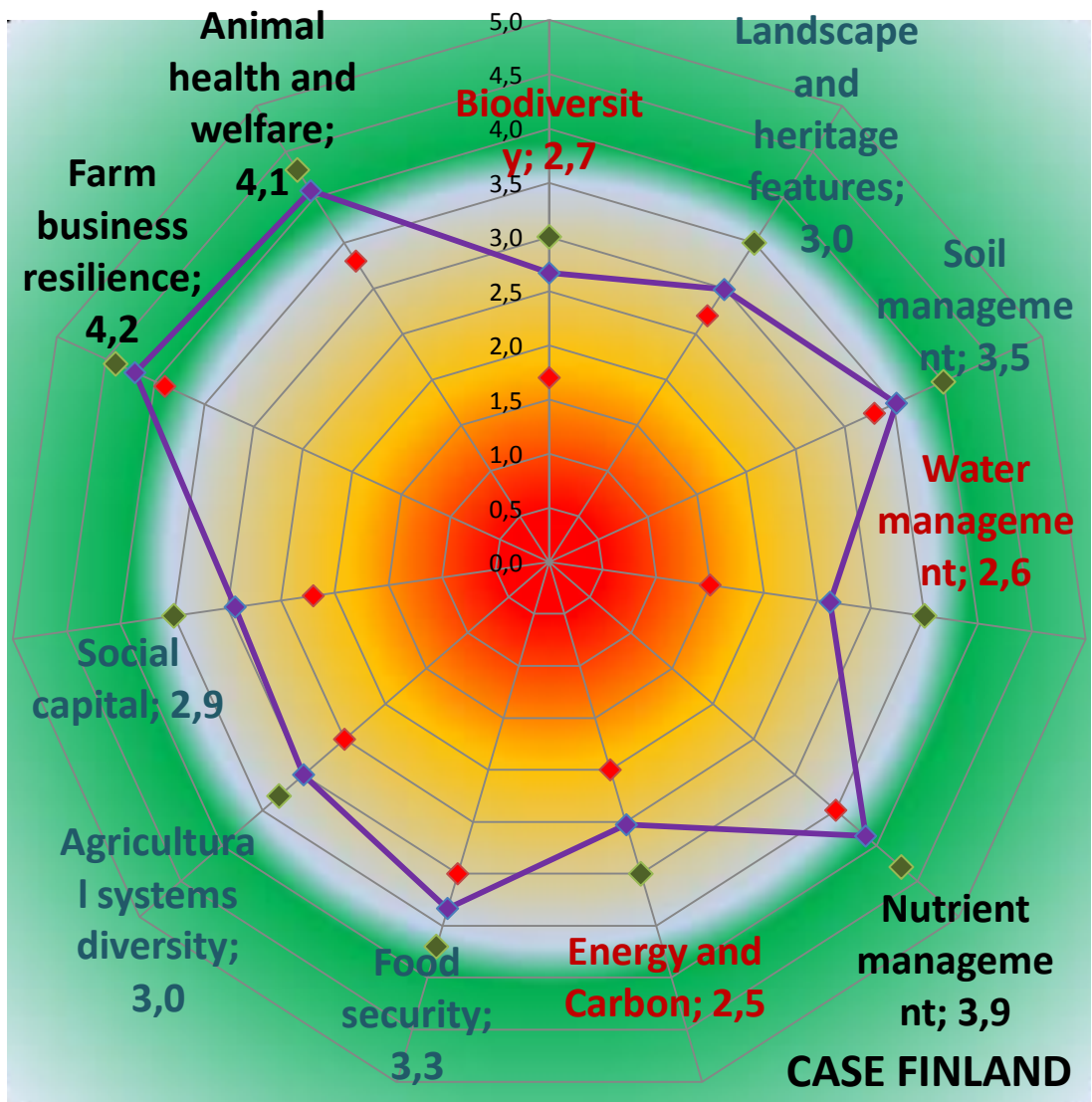
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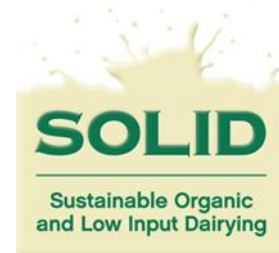
Participatory on-farm research varied from system to field level.

An example on **SYSTEM LEVEL** by several partners

Practical sustainability assessment for dairy producers



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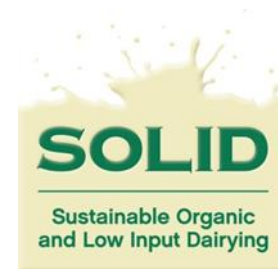
Practical sustainability assessment for dairy producers

A workshop was held in the UK to provide an opportunity to gather feedback from farmers, consultants and stakeholders on the SOLID results on this topic.

An overview of sustainability assessment methods and the various carbon footprinting tools available for UK dairy farmers was provided. New methods for including soil carbon changes and biodiversity indicators within sustainability assessments were also presented.



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An example on FARM LEVEL from GREECE

Irrigation of pasture for dairy goats (Arsenos, IFOAM 2014)

Communicating the idea with the farmer



- Farmers are reluctant to make changes in their everyday routine....
- But, they are open to discuss research ideas especially when their farm has a vertical integration
- The key issue is the “**cost and benefit**”
- **The farmer must be convinced that is worth to participate**

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Setting up the experimental protocol



- Designate areas within the farm
- Animal selection
- Use of farm machinery-facilities
- Reallocation of farm resources
- Establishing the shown pasture
- Maintaining the pasture (sward height, moisture)
- Subdivide the pasture with electric fencing



Start



One month later



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The farmer was advised to increase the irrigation



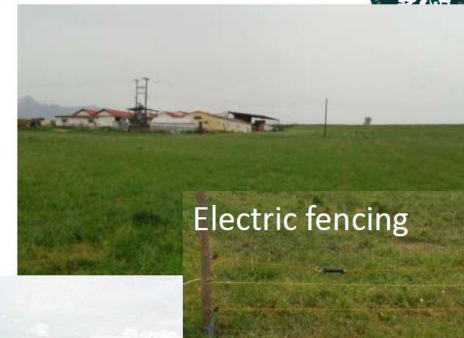
The irrigation system failed!



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3rd challenge: maintaining the appropriate stocking density



Electric fencing



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Feedback to the farmer – implement results

- The use of irrigated sown pasture in semi-intensive dairy goat production systems in Greece is a promising practice considering the cost of feeding indoors
- The effective management will be the key of success in practice

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Participatory on-farm research showed its importance

Irrigation of pasture for dairy goats (Arsenos, IFOAM 2014)

An example on FIELD LEVEL from FINLAND

Home-grown protein production

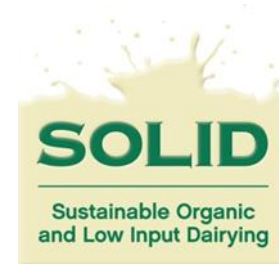
Organic farmers of the SME Company *Juvan Luomu Ltd* were involved.

The aim was to increase the protein self-sufficiency of organic dairy farms.

1. To study the effect of topping of organic red clover-grass in first cut on the clover content and dry matter production of the ley
2. To study the effect of the autumn application of slurry on growth of organic red clover-grass during the following spring



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TRIAL 1. Topping at the height of 30 cm by Lely Splendimo 550 P disc mowing machine.



Topped treatment.



Control without topping.

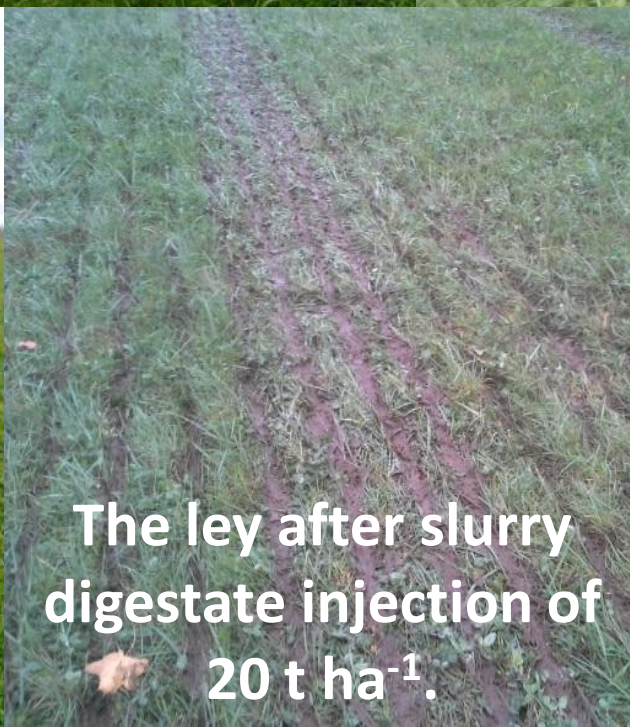
Photos: P. Kurki



TRIAL 2. The slurry was injected directly into the sward by Joskin slurry tanker.



Soil sampling.

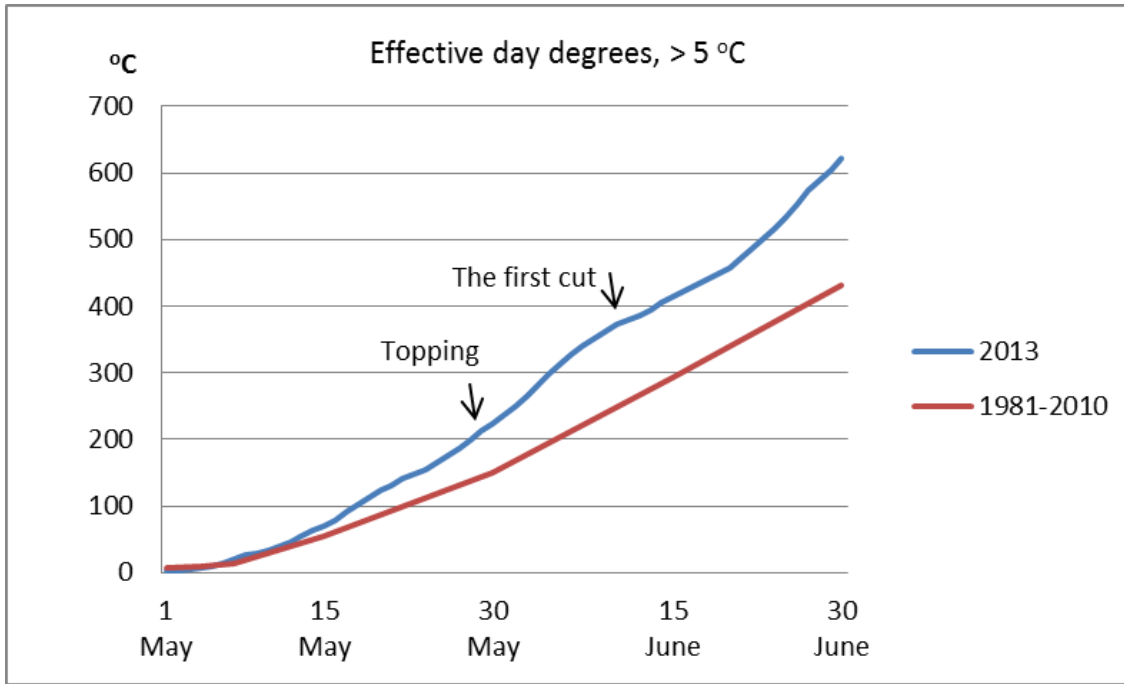


The ley after slurry digestate injection of 20 t ha⁻¹.



The same ley three weeks later.

Photos: P. Kurki



Trial 1. Topping did not increase clover content of the first silage cut but rather on the contrary due to too short period between topping and harvest.

Trial 2. Autumn slurry application increased crude protein content of grass and total crude protein yield of the first silage cut of the following year. Soil nitrogen results confirmed the result.



Photo: P. Kurki

In Finland, one of the challenges in conducting on-farm trials was to collect reliable quantitative data.

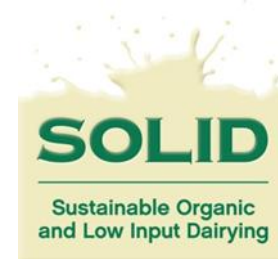
Besides research questions, two different methods of conducting on-farm research were tested on Finnish organic farms.

The yield of the swards in both trials was estimated both by taking 0.25 m² samples manually and by using a forage harvester equipped with scales, which was owned by the farmer.

There was no preference for different ways of doing on-farm research based on these cases. The interest of the farmer was the key point, when there was a need to do extra actions by him.



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The area for John Deere 7250i farm scale harvesting was marked clearly.



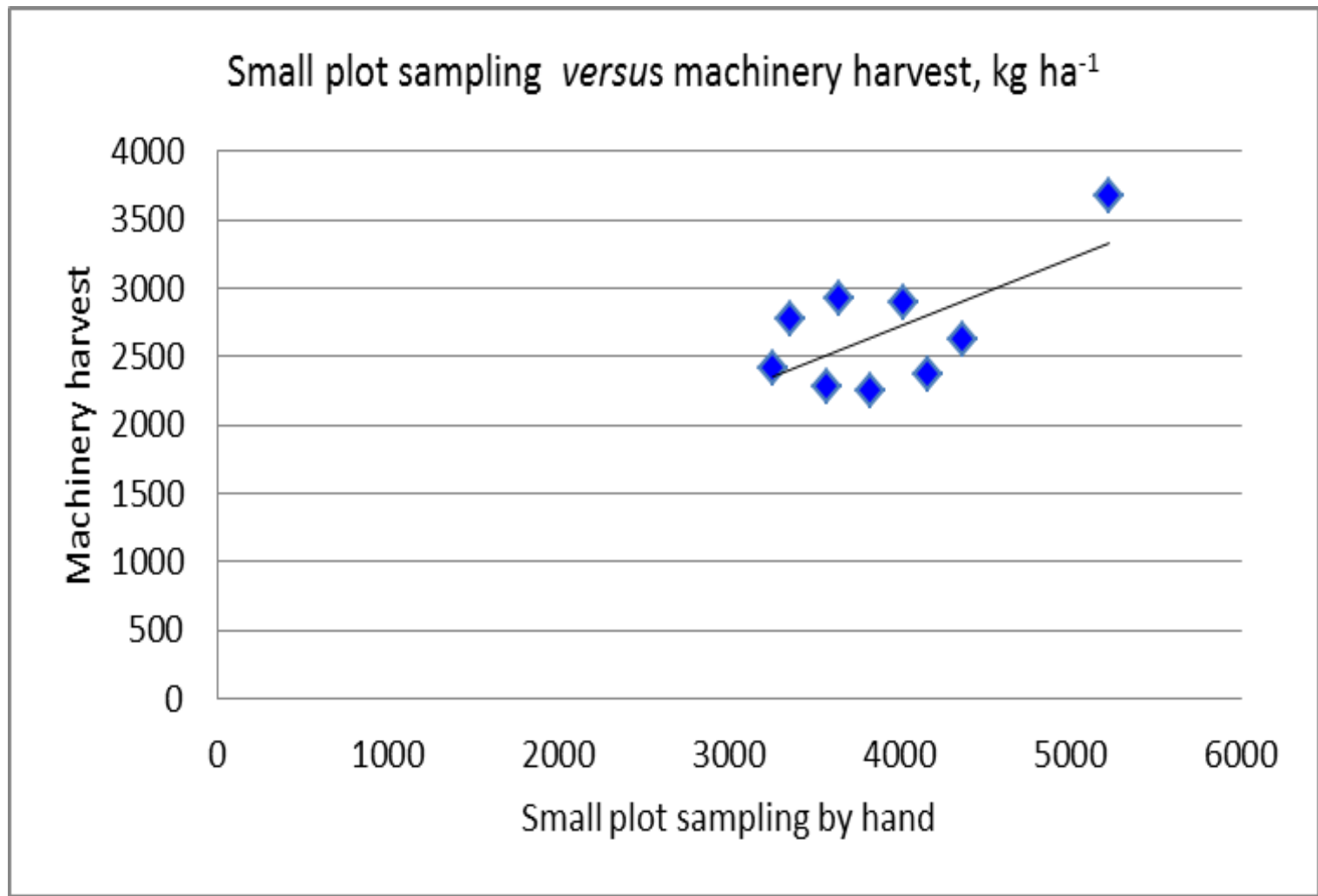
Yield estimation by a forage harvester.



Yield estimation manually by small plot sampling.



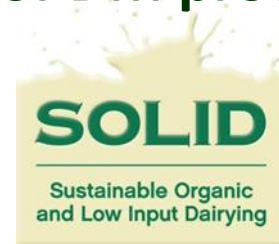
Photos: P. Kurki



Effect of harvest method on estimation of DM production.



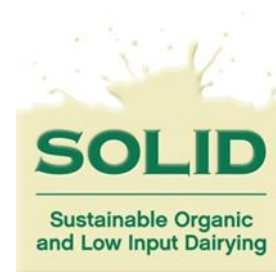
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Both methods seemed to work adequately, and the treatments ranked similarly with both yield estimation methods.

Yield of large scale harvesting averaged 72 % of that from small plot sampling in all farm trials.

But the difference was constant between fields and treatments indicating successful on-farm trial management.



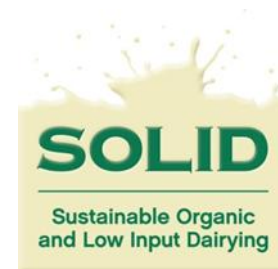
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On the basis of the experiences from the trials in Finland on-farm experiments had a lot to offer both to farmers and to researchers as an efficient tool to carry out research on good cultivation practices.

Observational actions were most suitable to be conducted by a researcher or an advisor in the small plots, but the overall yields of fields or larger plots were better to harvest with farm-scale machines.



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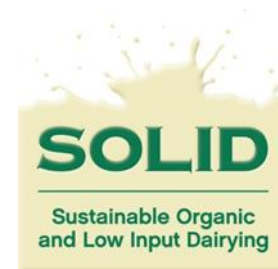
Successful cooperation of networking farmers, advisors and researchers was shown in these cases.

Discussions took place together with farmers, advisors and researchers to define the questions, and to conclude from results and experiences afterwards.

Targets to get more information for the farmers themselves and to disseminate to other farmers by professional magazines, Internet and open field days by trials were met.



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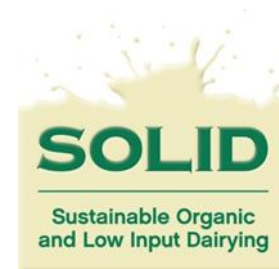


The most important phases in the on-farm research process were the discussions before and after the experimental work.

Under scarcity of funds for research on organic production, on-farm research was a valuable tool to develop the sector.



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INTERNATIONAL DISCUSSION at IFOAM 2014

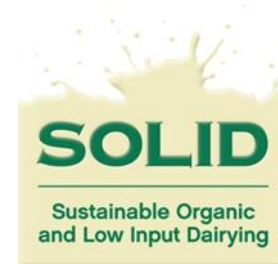
Various types of participatory on-farm research activities were discussed under the projects (SOLID in Europe and SYSCOM in India) but commonly the activities were led by the research team and farmers were actively engaging in the process.

It is obvious that on-farm research should provide practical solutions to existing production problems, but critical reflection by researchers may help farmers in identifying problems.

In this direction evidence from the SYSCOM project shows that the model of “mother” trial on station and “baby trials” as replication on farms can generate more impact than when trials are only conducted on farms.



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Stages to establish SysCom Participatory Research in India (Andres, IFOAM 2014)

RP & FYM trials Stage 2

II. Mother trial (2012, on-station)

Shaded shallow-pit system best conserves the quality of farm yard manure (FYM) as a fertilizer

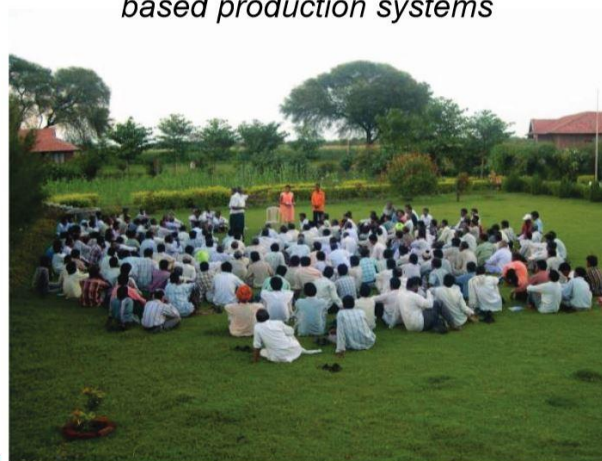


Picture:
Sara Gomez

RP & FYM trials Stage 1

I. Focus Group Discussions (2009)

Farmers state challenges with P limitation in their cotton-based production systems



Picture:
Christine Zundel

RP & FYM trials Stage 3

III. Demonstration shed and farmers training

BM acidulated RP is mixed with FYM, laying on and covered by tarpaulin foil, in a shaded shed structure



Picture: Lokendra S.
Mandloi

Great results by SysCom Participatory Research Project in India (Andres, IFOAM 2014)

RP & FYM trials Stage 3

Long-Term Systems Comparison Trials



III. On-farm trials with farmers (2013)

Seed cotton yield increased by 41%
across a range of farms (n=10) and
soils (heavy/light soil)*

RP & FYM trials Stage 3

Long-Term Systems Comparison Trials



III. Production of RP-FYM by five lead farmers

*Each farmer produced about 1'000 kg RP-FYM and
provided another 4 farmers with 200 kg to make trials*



Picture: Lokendra
S. Mandloi

RP & FYM trials Stage 3

Long-Term Systems Comparison Trials



III. Dissemination

*Competition among farmers: best quality compost won a
cow and calf*



Picture: Lokendra
S. Mandloi

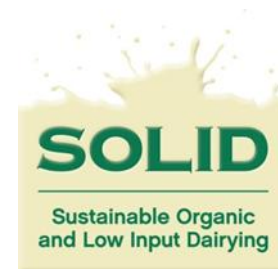
CONCLUSION

Farm trials could well supplement but not as a sole tool to substitute experimental work of documented research stations and controlled environments.

Participatory approach is definitely a great chance to evaluate research questions and allocate resources of the future research.



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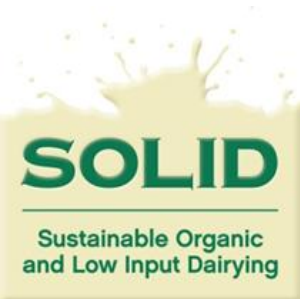




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As a scientist I felt always humble when
meeting farmers.

Thank you all.



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