



**PPP Project Final Report**

<b>General information</b>	
PPP number	TKI-AF-16060
Title	<b>Sesame Open: Unlocking the potential of organic sesame</b>
Theme	
Executive knowledge institution(s)	Wageningen Food & Biobased research
Research project leader (name + e-mail address)	Theo Verkleij theo.verkleij@wur.nl
Coordinator (on behalf of private parties)	Karst Kooistra, Tradin Organic Agriculture B.V.
Government contact person	dr. P.S. Wagenmakers
Total project size (k€)	Original budget 2017-2020 (4 years): k€ 960 (k€ 480 public funding, k€ 240 private contribution in cash, k€ 240 private contribution in kind) Realisation 2017-2018 (2 years): k€ 345 (k€ 170 public funding, k€ 75 private contribution in cash, k€ 200 private contribution in kind)
Address project website	<a href="https://topsectoragrifood.nl/project/sesame-open-unlocking-the-potential-of-organic-sesame/">https://topsectoragrifood.nl/project/sesame-open-unlocking-the-potential-of-organic-sesame/</a>
Start date	January 1, 2017
End date	February 22, 2019 (the project was terminated early)

<b>Approval coordinator/consortium</b>	
<i>The report should be discussed with the coordinator/the consortium. The TKIs appreciate being informed of possible feedback on the report.</i>	
The coordinator has assessed the report on behalf of the consortium	X approved rejected
Feedback from the consortium coordinator on the report	

**Short description/aim PPP**  
 What is going on and how is this project involved?  
 What will be delivered by the project and what will be the effect of this?

Sesame (*Sesamum indicum*) is a nutritious, protein rich oilseed crop. Compared to other countries in Africa, Ethiopia has a well-established sesame production zone with knowledgeable farmers and highly appreciated sesame varieties. In the past 10 years, production has rapidly increased. More than 98% of the sesame, produced in Ethiopia, is exported. Sesame is among the six crops prioritised by the Ethiopian Government. The focus of this project was on the organic sesame value chain, organised from farms, to professional storage and handling, to hulling in Addis Ababa and export to Europe in cooperation with Dutch companies. This value chain is unique as it brings the production and market side together and collaborative relations between companies and farmers are established. The objective of this project was to build up a knowledge base and to implement innovations that supports the development of competitive, sustainable and inclusive organic sesame values and that impact on the Sesame sector in NW Ethiopia at large resulting from the sharing and scaling of innovations, practices and results. For the development of this organic sesame value chain additional knowledge and innovations were required for three interrelated topics in this value chain:

1. Optimization of organic sesame production by application of best agricultural practices.
2. Farmer-company relations, cooperative professionalization and tracking and tracing.
3. New added value propositions.

Mid 2018, it became clear that the progress of the project was insufficient, which was reinforced after stopping the participation of one of the partners. In subsequent meetings between the consortium and the (new) research project leader, it became increasingly clear that the original objective of pillar 1 and 2 of the project would be difficult to realize via this route. It has been agreed to adjust the project plan by giving more attention to the knowledge questions in the field of organic cultivation, soil quality, entomology and mechanization. These points were included in an activity plan for 2019. Several scenarios were set up and discussed. In the project committee meeting on February 22nd, it turned out that the focus of work package 1 and 2 were not extended enough from research on improved practices to actual implementation of already proven and available practices to reach the partnerships objective. While all partners are content with the start and outline of WP3, the outline of activities and resource persons for WP1 and WP2 as proposed did not reflect the expected broadening of the focus to go forward with both the work packages. Having thus explored all possible options to make the project a success, the project partners concluded during the meeting that the current partnership setup, facing the limitations of the TKI- requirements, will not be able to generate the expected results for both WP1 and WP2. The outline of WP3 gave nevertheless enough confidence that the research project leader was asked to explore the possibility to continue the Sesame Open project only for WP3. Although the first explorations were promising, the interest of the majority of the consortium partners was too low for the project to continue for topic 3 only.

<b>Changes to the original project plan and follow-up</b>	
Have there been any changes in the consortium/project partners? If yes please explain	Yes, one of the project partners stepped out the consortium (mid-2018). Also a new research project leader has been appointed due to retirement of the former project leader. End 2018, it was decided to continue only pillar 3. In June 2019 the project leader and remaining partners decided to terminate the project due to low interest of the remaining partners
Have there been any changes in the project set up? If yes please explain.	The project was terminated early after two years, so approximately 50% of the project plan was not implemented
Do you expect a patent application to arise from this PPP? If yes please explain	No
Do you expect spin offs to arise from this PPP? (including new projects) If yes please explain	No
in how many years will the private parties use results from this project in practice?	The obtained results from pillar 1 and 2 can be used in the of cultivation organic sesame
How has the project contributed to developments within the	No scientific breakthroughs

involved knowledge institution(s)? (e.g. scientific breakthroughs, new collaborations etc)	
What will be the follow up of this project?	No

### **Achieved Results**

The achieved results are summarized per pillar, as described in the project. The description of the pillars is: 1. Optimization of organic sesame production by application of best agricultural practices  
2. Farmer-company relations, cooperative professionalization and tracking and tracing  
3. New added value propositions

Results for 2017 were reported in January 2018 (Geerts, Lang and Bartels, 2018).

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For pillar 1, agronomic innovations were tested with the following results:

crop residues ploughed in after harvest resulted in reduced weeds, a broken pest life cycle, increased organic soil matter, and a yield increase up to 10%. The tests with bio-fertilizers and use of cow dung show yield increase, but are practically and economically not feasible yet. This indicates the challenge for finding solutions that solves the current situation that organic farming is soil depleting. The use of rotation crops is very important for sustainable farming. Mung bean is doing well in the Humera area. Out of new options, Lablab, Chia and Cow pea show increase of yield, but more tests needs to be executed to have more reliable information and to convince the farmers.

Mechanization trials were carried out at a larger scale. The key challenges here are the availability and cost of machinery, and the communication about company-farmer collaboration regarding mechanization solutions. Like soil fertility management, pest and disease management, which is more difficult and faced with limitations for farmers, still needs more attention. Preventive measures are most important, as are farmers' capacities for field scouting. A population of seed bugs is kept at HuARC, first tests with an organic pesticide are promising.

For pillar 2, the main challenge was developing the relations between farmers and the company (Selet Hulling). The current farmer-company relation situation is still close to the wide-spread agribusiness system in Africa, farmers sells on a one-off basis, sometimes to traders, sometimes to the cooperative, without the intention to build up a long-term business relation. The rate of sesame that is accepted as organic is low. The main challenge to address is that farmers have not made an explicit choice for being organic farmers. Factors that influence this choice are many: incentives (access to loans, premium price), services (support to mechanization, bags, training), market options for rotation crops, and risks (higher risks of soil depletion and pest and diseases, risk of contamination by neighbors). In 2018, Selet Hulling offered a more specific package to farmers (mechanization, premium) and is seeking to find a package that is economically feasible for them and convincing enough for organic farmers.

For pillar 3, the exploration of use the waste flows after harvest for processing or making fuel out of it are calculated as too costly. Fertilizing the soil for organic cultivation has priority, so priority is given to mulch the straw into the soil. The side flow of hulls during processing was explored but the volume is too low to be of interest. The research of possible added value of protein in the press cake was postponed to early 2019. Several explorative experiments were carried out from January till March in close collaboration with Duyvis Wiener and reported.

### **Deliverables** (description of the most important products and their target group)

The primary outcome of pillar 1, Farmers applying innovations, reduce the farm-level organic sesame production cost price per bag of 100 kg (quintal) was targeted in 2018 at 10%. This wasn't reached.

The primary outcome of pillar 2, Selet Hulling and sesame farmers engage and invest in a repeated supplier-buyer relation to the benefit of both, was not realized in 2018.

The primary outcome of pillar 3, sesame product diversification for bakery, tahini and oil industries, and value creation from crop and processing residues, was a presentation of different new innovative routes to improve the value of processing residues. Some practical tests were carried out, but not scaled up to industrial level.

### **Number of delivered products** (in an appendix, please provide the titles and/or description of

the products or a link to the products on public websites)			
Academic articles	Reports	Articles in journals	Introductions/workshops
	2		1

Reports:

- Sesame Open project, Annual Report 2017, O. Geerts, J. Lang, P. Bartels, January 2018
- Midterm report PPS Sesame Open, unlocking the potential organic sesame. T.Verkleij, T.Schrader, O.Geerts. report 1908, January 2019.

Introduction/workshop

- Organic agricultural practices, T. Schrader, October 2018

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