Curriculum Vitae

Name	Eva Brod
Date of birth	13 July 1986
Nationality	German
Mother tongue	German
Other languages	English, Norwegian
Address	NIBIO/Norwegian Institute of Bioeconomy Research, P.O. Box 115, 1431 Ås, Norway
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Position

6/2016 – to date	Research Scientist, PhD NIBIO, Norwegian Institute of Bioeconomy Research

Relevant work experience

4/2019 – 7/2019	Research stay University of Copenhagen, Section for Plant and Soil Sciences with supervision by Dr. Sander Bruun
5/2012 – 6/2016	PhD candidate NIBIO, Norwegian Institute of Bioeconomy Research
8/2014 – 1/2015	Research stay Eidgenössische Technische Hochschule, Zürich, Group of Plant Nutrition with supervision by Dr. Astrid Oberson and Prof. Emmanuel Frossard
1/2012 – 5/2012	Research assistant Bioforsk, Norwegian Institute for Agricultural and Environmental Research, Frederik A Dahls Vei 20, 1430 Ås, Norway

Education

5/2012 – 6/2016	Philosophiae Doctor (PhD) Norwegian University of Life Sciences, P.O. Box 5003, 1432 Ås, Norway Supervisors: Prof. Tore Krogstad, Dr. Anne Falk Øgaard, Dr. Trond Knapp Haraldsen, Prof. Daniel Müller
1/2010 – 1/2012	Master of Science in Agroecology Norwegian University of Life Sciences, P.O. Box 5003, 1432 Ås, Norway
8/2006 – 8/2009	Bachelor of Science in Organic Farming and Marketing Hochschule für Nachhaltige Entwicklung, Friedrich-Ebert-Straße 28, 16225 Eberswalde, Germany

Career breaks

2018/2019, 2022/2023	Parental leaves

Key qualifications

Quality of bio-based fertiliser (nitrogen and phosphorus)
Characterisation of inorganic phosphorus compounds
Soil analysis (phosphorus)
Material flow analysis

Project management experience

1. BLÅNE: Bærekraftig utnyttelse av slam fra havbruksnæringen (2026-2028, Grønn Plattform, Norwegian Research Council/Innovation Norway, WP leader)
2. Økt fosforkvalitet i organisk gjødsel (2026-2027, Norwegian Agriculture Agency, project manager)
3. Analyse av organiske gjødselvarer: Ringtest for bedre ressursbruk og mindre forurensning (2025-2026, Norwegian Agriculture Agency, project manager)
4. Kunnskap for økt nitrogeneffektivitet gjennom resirkulering (2025, Norwegian Agriculture Agency, WP leader)
5. Circulizer: Anaerobic digestate produced from marine residual resources: Fertilizer quality, environmental benefits and facilitating change (2024-2027, FFL/JA, WP leader)
6. Vurdering av et omsetningskrav for resirkulert fosfor: Evaluation for the Norwegian Ministry of Agriculture and Food (2023-2024, Norwegian Ministry of Agriculture and Food, WP leader)
7. Biorest fra nye marine råstoffer og husdyrgjødsel: Bruksanbefalinger for landbruket (2021-2023, Norwegian Agriculture Agency, WP leader)
8. From blue waste to green resource: Fish sludge as fertiliser in agriculture (2019-2024, Personal postdoctoral scholarship funded by the Norwegian Research Council, project manager)
9. Sustainable recycling of organic waste resources in the future bioeconomy (2016-2020, Strategical institute programme, Norwegian Ministry of Agriculture and Food, project manager/WP leader)

Other relevant professional experiences

1. Avfallsforsk – Board member (2026-2027)
2. Slamkonferansen (NCE Aquaculture), 28-29 april 2026, Hamarøy/Norway – Member of the organisation committee (2026)
3. Nutrients in aquaculture and fisheries (ESPP workshop), 10-12 juni 2025, Bergen/Norway – Member of the organisation committee (2025)
4. Bioseminaret (Sirk Norge) 25-26 September 2024, Stavanger/Norway – Member of the organisation committee (2024)

Awards and scholarships

1. NIBIO Divisjon for Miljø Naturressurser – Prosjektprisen (2025)
2. Phosphorus in Soils and Plants 5th International Symposium 26-29 August 2014 and Sustainable Phosphorus Summit 1-3 September 2014, Montpellier – Young Scientist award (2014)

Publications

Journal articles (peer reviewed)

1. Rødvei PH, Westeren KI, **Brod E**, Meisfjord J (2026) Cost and Sustainability of Recycling Sludge into Bio-Based Fertilizer: A Case Study from Norwegian Smolt Aquaculture. *Aquaculture Journal*. https://doi.org/10.3390/aquacj6020016
2. Kvakkestad V, **Brod E**, Flø BE, Hanserud O, Helgesen H (2023) Circulation of nutrients through bio-based fertilizer products: perspectives from farmers, suppliers, and civil society. *Frontiers in Sustainable Food Systems*. Doi 10.3389/fsufs.2023.1239353
3. **Brod E**, Henriksen TM, Ørnsrud R, Eggen T (2023) Quality of fish sludge as fertiliser to spring cereals: Nitrogen effects and environmental pollutants. *Science of the Total Environment* 875: 162541

4. **Brod E**, Øgaard AF, Müller-Stöver DS, Rubæk GH (2022) Considering inorganic P binding in bio-based products improves prediction of their P fertiliser value. *Science of the Total Environment* 836: 155590
5. **Brod E**, Øgaard AF (2021) Closing global P cycles: The effect of dewatered fish sludge and manure solids as P fertiliser. *Waste Management* 135: 190-198
6. **Brod E**, Toven K, Haraldsen TK, Krogstad T (2018) Unbalanced nutrient ratios in pelleted compound recycling fertilizers. *Soil Use and Management*: doi: 10.1111/sum.12407
7. **Brod E**, Oppen J, Kristoffersen AØ, Haraldsen TK, Krogstad T (2017) Drying or anaerobic digestion of fish sludge: Nitrogen fertilisation effects and logistics. *AMBIO* 46(8): 852-864
8. **Brod E**, Bechmann M, Øgaard AF (2017) Løst fosfat i jordbruksavrenning – forskjell mellom driftssystemer. *VANN* 1: 47-56 (in Norwegian)
9. Hamilton HA, **Brod E**, Hanserud O, Müller DB, Brattebø H, Haraldsen TK (2016) Recycling potential of secondary phosphorus resources as assessed by integrating substance flow analysis and plant-availability. *Science of the Total Environment:* doi: 10.1016/j.scitotenv.2016.10.056
10. Øgaard AF, **Brod E** (2016) Efficient phosphorus cycling in food production: Predicting the phosphorus fertilization effect of sludge from chemical wastewater treatment. *Journal of Agricultural and Food Chemistry* 64 (24): 4821-4829
11. **Brod E**, Øgaard AF, Krogstad T, Haraldsen TK, Frossard E, Oberson A (2016) Drivers of phosphorus uptake by barley following secondary resource application. *Frontiers in Nutrition* 3(12): doi: 10.3389/fnut.2016.00012
12. **Brod E**, Øgaard AF, Hansen E, Wragg D, Haraldsen TK, Krogstad T (2015a) Waste products as alternative phosphorus fertiliser. Part I: Inorganic P species affect fertilisation effects depending on soil pH. *Nutrient Cycling in Agroecosystems* 103: 167-185
13. **Brod E**, Øgaard AF, Haraldsen TK, Krogstad T (2015b) Waste products as alternative phosphorus fertiliser. Part II: Predicting P fertilisation effects by chemical extraction. *Nutrient Cycling in Agroecosystems* 103: 187-199
14. Hanserud OS, **Brod E**, Øgaard AF, Müller D, Brattebø H (2015) A multi-regional soil phosphorus balance for exploring secondary fertilizer potential: the case of Norway. *Nutrient Cycling in Agroecosystems* 104: 307–320
15. Hamilton HA, **Brod E**, Hanserud O, Gracey E, Vestrum M, Steinhoff F, Müller D, Brattebø H (2015) Investigating cross-sectoral synergies through integrated aquaculture, fisheries and agricultural phosphorus assessments: A case study of Norway. *Journal of Industrial Ecology*, doi:10.1111/jiec.12324
16. **Brod E**, Haraldsen T, Krogstad T (2014) Combined waste resources as compound fertiliser to spring cereals. *Acta Agriculturae Scandinavica - Section B* 64: 329-340
17. Haraldsen T, **Brod E,** Krogstad T (2014) Optimising the organic components of topsoil mixtures for urban grassland. *Urban Forestry & Urban Greening* 13: 821-830
18. **Brod E,** Haraldsen T, Breland T (2012) Fertilization effects of organic waste resources and bottom wood ash: results from a pot experiment. *Agricultural and Food Science* 21: 332-347

Abstracts, posters etc. (peer-reviewed)

1. Rittl TF, Lied JG, Aker M, Kvande I, **Brod E**, Lyng K-AK (2024) Fertilizer quality of anaerobic digestate produced from marine residual resources. Poster presented at Annual Science Days 10-14 June 2024, Vilnius, Lithuania
2. **Brod E**, Øgaard AF (2018) Olsen-P can predict the plant-availability of phosphorus in recycling fertilizers. Poster presented at PSP 6 Phosphorus in Soils and Plants 10-13 September 2018, Leuven, Belgium

3. **Brod E**, Øgaard AF (2016) Decision tool for predicting P fertilisation effects of secondary resources. Poster presented at 8th International Phosphorus Workshop 12-16 September 2016, Rostock, Germany
4. **Brod E**, Hamilton H, Hanserud O, Haraldsen TK, Müller D (2015) The recycling potential of P in Norwegian secondary resources in a system's context. Reviewed abstract presented at RAMIRAN, 16th International Conference Rural-Urban Symbiosis 8 - 10 September 2015, Hamburg, Germany
5. **Brod E**, Øgaard AF, Haraldsen TK, Krogstad T (2014) How much P in waste is plant-available at different soil pH levels? Poster presented at 5th International Symposium on Phosphorus in Soils and Plants 26-29 August 2014, Montpellier, France
6. Hanserud OS, **Brod E**, Brattebø H (2014) A regional-scale soil phosphorus balance for exploring mineral fertilizer substitution potentials – the case of Norway. Abstract presented at 4th Sustainable Phosphorus Summit 1-3 September 2014, Montpellier, France

Reports, theses etc.

1. **Brod E**, Böpple H, Aarbakke AS, Nyvoll S, Bjerga G (2026) Sirkulær utnyttelse av organiske råvarer: Prosesser, produkter og rammer for anvendelse innen jordbruket. Rapport nr. 3-2026, *NORCE Klima og miljø*. 62 p.
2. **Brod E**, Nesse AS, Føreid B (2026) Inclusion of fish sludge in the EU Fertilising Products Regulation (FPR) - State of the art and knowledge gaps. *NIBIO rapport* 75 (12) 46 p.
3. Aas TS, **Brod E**, Solli L (2025) Sammensetning og potensiale for bruk av fiskeslam uten fôrrester. *Nofima rapport* 4/2025, 39 p. (in Norwegian)
4. Borg P, Byers E, **Brod E**, Kvakkestad V, Kristoffersen AØ (2025) Barrierer og muligheter for bruk av resirkulert nitrogen som gjødsel. Delrapport 2 i prosjektet Kunnskap om økt nitrogeneffektivitet gjennom resirkulering. *NIBIO rapport* 125 (11) 52 p. + appendices (in Norwegian)
5. **Brod E** (2025) Kalkulator for plantetilgjengelig fosfor i organiske gjødselvarer. *NIBIO rapport* 11(141), 20 p.
6. **Brod E**, Bechmann M, Borg P, Byers E, Frøseth FB, Kristoffersen AØ, Kvakkestad V, Zivanovic I (2025) Økt nitrogeneffektivitet gjennom resirkulering. *NIBIO-POP* 11(66) 4 p.
7. **Brod E**, Kristoffersen AØ, Persson T (2025) Foredling av storfegjødsel: Fosfor- og nitrogeneffekter av nye gjødselprodukter. *NIBIO rapport* 84 (11), 38 p.
8. Frøseth RB, Kristoffersen AØ, Bechmann M, **Brod E** (2025) Nitrogenkilder og -strømmer i jordbruket. Delrapport 1 i prosjektet Kunnskap om økt nitrogeneffektivitet gjennom resirkulering. *NIBIO rapport* 124 (11), 24 p.
9. Zivanovic I, **Brod E** (2025) Teknologier for økt kvalitet og mengde resirkulert nitrogengjødsel. Delrapport 3 i prosjektet Kunnskap om økt nitrogeneffektivitet gjennom resirkulering. *NIBIO rapport* 11(126), 48 p.
10. Øgaard AF, Kvakkestad V, Bjerke K, **Brod E**, Byers E, Nesse AS, Sposób M, Strøm-Andersen N, Wilsher-Lohre S (2024) Vurdering av et omsetningskrav for resirkulert fosfor. *NIBIO rapport* 104 (10) 118 p. (in Norwegian)
11. **Brod E** (2024) Brukerguide for biorest fra marine råstoffer. *NIBIO-POP* 10 (28) 4 p. (in Norwegian)
12. **Brod E** (2024) Biorest fra marine råstoffer. *NIBIO bok* 10(2) 151-157 (in Norwegian)
13. **Brod E** (2023) Biorest fra marine råstoffer – Kjemisk sammensetning og gjødselkvalitet. *NIBIO report* 140 (9) 16 p. (in Norwegian)
14. **Brod E**, Øgaard AF (2023) Fiskeslam fra smolt- og postsmoltproduksjon som gjødsel – Vurdering av kjemiske analyser (2010-2023). *NIBIO report* 123 (9) 24 p. (in Norwegian)
15. Henriksen TM, Kristoffersen AØ, Øgaard AF, **Brod E** (2023) Organiske avfallsprodukt som gjødsel – Bestemmelse av nitrogeneffekten. *NIBIO report* 72 (9) 50 p. (in Norwegian)

16. Bechmann M, Frøseth RB, Rivedal S, **Brod E**, Fischer F, Seehusen T, Øgaard A (2023) Tiltak for bedre nitrogenforvaltning i norsk jordbruk. *NIBIO report* 44 (9) 60 p. (in Norwegian)
17. **Brod E** (2021) Fiskeslam som nitrogengjødsel til korn – Resultater fra FishBash prosjektet. *NIBIO report* 137 (7) 41 p. (in Norwegian)
18. **Brod E**, Øgaard AF (2021) Fosforeffekt av organisk avfall. *NIBIO report* 30 (7) 59 p. (in Norwegian)
19. **Brod E**, Henriksen TM (2021) Fiskeslam som nitrogengjødsel til korn. *NIBIO bok* 7 (1), 140-147 (in Norwegian)
20. **Brod E**, Øgaard AF (2020) Fosforeffekt av organisk avfall. *NIBIO bok* 6 (1), 131-136 (in Norwegian)
21. Henriksen TM, Kristoffersen AØ, **Brod E**, Øgaard AF (2019) Nitrogeneffekt av organisk avfall til korn – et forsøk i laboratoriet. *NIBIO bok* 5 (1), 140-145 (in Norwegian)
22. Cabell J, **Brod E**, Ellingsen J, Løes A-K, Standal IB, Tordnes B, Vivestad H (2019) Bruk av tørket slam fra settefiskanlegg som gjødsel i norsk landbruk. *NIBIO report* 146 (5) 146 p. (in Norwegian)
23. **Brod E** (2018) Manure-based recycling fertilisers – A literature review of treatment technologies and their effect on phosphorus fertilisation effects. *NIBIO report* 91 (4) 25 p.
24. Haraldsen TK, **Brod E**, Øgaard AF (2017) Kvalitetskriterier og merkekrav for organiske Avfallsmaterialer. Forslag til endringer i forskrift om gjødselvarer mv. av organisk opphav. *NIBIO report* 156 (3) 38 p. (in Norwegian)
25. **Brod E**, Haraldsen TK (2017) Miljøvennlige jordblandinger – klima, resirkulering og bruksområder. *NIBIO report* 151 (3) 40 p. (in Norwegian)
26. Blytt LD, **Brod E**, Øgaard AF, Johannessen E, Estevez MM, Paulsrud B (2017) Bedre utnyttelse av fosfor. *Miljødirektoratet report* M-846 64 p. (in Norwegian)
27. **Brod E**, Haraldsen TK, Krogstad T (2016) Fiskeslam som nitrogengjødsel. Effekt av ulike behandlingsteknologier. *NIBIO report* 118 (2) 19 p. (in Norwegian)
28. Horn H, Tellnes L, **Brod E**, Clarke N, Dibdiakova J, Hanssen KH, Haraldsen TK, Karlsen T, Toven K (2016) Innovativ utnyttelse av aske fra trevirke for økt verdiskapning og bærekraftig skogbruk. *Report Norsk Treteknisk Institutt*. 50 p. (in Norwegian)
29. **Brod E** (2016) The recycling potential of phosphorus in secondary resources. *Doctoral thesis*. Ås, Norwegian University of Life Sciences. 37 p. + appendix
30. Haraldsen TK, **Brod E**, Stabbetorp J (2014) Oppkonsentrert biorest som gjødsel til korn. In: *Jord- og Plantekultur 2014*: 164-173 (in Norwegian)
31. **Brod E**, Haraldsen TK, Krogstad T (2012) Efficiency of combined waste resources as N and P fertiliser to spring cereals. *Bioforsk Report* 184 (7) 31 p.

Popular-scientific dissemination

1. Lyng K-A, **Brod E** (2026) Det er ikke bioresten som er problemet. *Biogassbransjen.no* 3.11.2026 (in Norwegian)
2. Espinoza M (2026) Biorest til besvær. Article on *Biogassbransjen.no* based on interview with **Eva Brod** 28.10.2026 (in Norwegian)
3. Luksengard E (2026) Møter fagleg motstand: – Skjønar ikkje kvifor dei vil lage biokol av fiskeslam. Article in *Hallingdølen* based on interview with **Eva Brod** 24.3.2026 (in Norwegian)
4. **Brod E** (2025) Dried fish sludge – the farmers' new gold? Fjell Tech Agenda, 5 p.
5. **Brod E,** Nesse AS (2025) Laksebæsj kan styre norsk beredskap, hvis vi vil. Kulingen.no, 30.12.2025 (in Norwegian)
6. **Brod E**, Olsen TC (2025) Lovende for fiskeslam – som gjødsel. *Ilaks.no*, 20.6.2025 (in Norwegian)

7. Nordsletten BÅ (2024) Fosformengda fyk i veret. Article in *Bondevennen* based on interview with **Eva Brod** 30.9.2024 (in Norwegian)
8. Gulden KT (2024) Fiskeavfall kan gi bøndene god gjødsel. Article in *Nationen* based on interview with **Eva Brod** 11.8.2024 (in Norwegian)
9. Gulden KT (2023) Har kartlagt organiske miljøgifter i fiskeslam. Article on *Biogassbransjen.no* based on interview with **Eva Brod** 8.5.2023 (in Norwegian)
10. Haraldsen TK, **Brod E** (2023) Ingen biogass uten ny gjødselforskrift. *Teknisk Ukeblad Energi/Biogassbransjen.no/Nationen* 12./13./17.4.2023 (in Norwegian)
11. Øgaard AF, Bechmann M, **Brod E**, Hanserud OS (2021) Nye gjødselkrav vil gi renere vann og mindre fosforsløsing. *Bondevennen* p. 14-15, 26.11.2021 (in Norwegian)
12. Gulden KT (2021) Enkel metode viser fosforeffekten til organisk gjødsel. Article in *Nationen* based on interview with **Eva Brod** 24.4.2021 (in Norwegian)
13. Øgaard AF, Bechmann M, **Brod E**, Hanserud OS (2021) Nye gjødselkrav gir renere vann og mindre fosforsløsing. *Nationen*, 16.4.2021 (in Norwegian)
14. Fenstad A (2021) Tror klimaavgift kan åpne for fiskeslam som gjødsel – En varslet avgift på mineralgjødsel kan gjøre det mer aktuelt å satse på organisk gjødsel, mener forsker. Article in *Teknisk Ukeblad Industri* based on interview with **Eva Brod** 18.1.2021 (in Norwegian)
15. **Brod E**, Bjordal MV, Erbs S (2020) Fiskeslam kan bli bondens nye gull. *Dagens Næringsliv*, 10.7.2020 (in Norwegian)
16. **Brod E**, Henriksen TM, Øgaard AF (2020) Kvalitetskrav til fiskeslam som skal brukes til gjødsel. *Norsk Fiskeoppdrett* 2, 36-40 (in Norwegian)
17. Spilde I (2020) Verdens matproduksjon er avhengig av fosfor. Er vi i ferd med å gå tom? Article in *Forskning.no* based on interview with **Eva Brod** 2.6.2020 (in Norwegian)
18. Fenstad A (2020) Disse gjødseltypene kan hindre fosformangel - Den mest klimavennlige gjødselen gir lite fosfor til plantene. Article in *Teknisk Ukeblad Klima* based on interview with **Eva Brod** 10.2.2020 (in Norwegian)
19. Fenstad A (2019) Her gjødsler de åkeren med fiskeskitt – Tester om lakseslam kan erstatte mineralgjødsel. Article in *Teknisk Ukeblad Maritim* based on interview with **Eva Brod**, 13.5. 2019 (in Norwegian)
20. **Brod E**, Haraldsen TK (2018) Ingen gode alternativer til torv. *Forskning.no*, 24.5.2018
21. Gulden KT (2017) Ikke mulig å erstatte torven helt. Article in *Nationen* based on interview with **Eva Brod**, 19.2.2018 (in Norwegian)
22. **Brod E**, Haraldsen TK (2017) Oppdrettsnæringen kan bli en viktig gjødselprodusent. *Norsk Fiskeoppdrett* 2: 28-32 (in Norwegian)
23. **Brod E**, Krogstad T (2017) Norsk fiskeslam til gjødseleksport. *Dagens Næringsliv*, 20.7.2017 (in Norwegian)
24. **Brod E**, Hanserud O (2017) Fosfor må brukes smartere. *Økologisk Landbruk* 2: 8-10 (in Norwegian)
25. Gulden KT (2017) Tørket fiskebæsj gir god kornvekst. Article in *Nationen* based on interview with **Eva Brod**, 9.1.2017 (in Norwegian)
26. Gulden KT (2017) Bedre gjødsel og billigere i transport. Article in *Nationen* based on interview with **Eva Brod**, 9.1.2017 (in Norwegian)
27. Petersen M (2017) Tørket fiskeslam gir god gjødseleffekt. Article on *kyst.no* based on interview with **Eva Brod**, 3.1.2017 (in Norwegian)
28. Dybdal SE (2016) Meiner landbruket må satse på resirkulering av fosfor. Article in *Nationen* based on interview with **Eva Brod**, 18.5.2016 (in Norwegian)
29. Jensen PM (2016) Næringen må reguleres enda strengere. Article on *kyst.no* based on interview with **Eva Brod**, 3.2.2016 (in Norwegian)
30. Gulden KT (2015) Oppdrettsnæringen sløser med fosfor. Article in *Nationen* based on interview with **Eva Brod**, 19.10.2015 (in Norwegian)

31. Grønlund A, **Brod E**, Hanserud OS (2015) Potensial for gjenvinning og resirkulering av fosfor. *VANN* 50: 197-200 (in Norwegian)