

## CURRICULUM VITAE

**Name:** Anne Kristin Falk Øgaard  
**Date of birth:** 29-10-1957  
**Address:** NIBIO, Norwegian Institute of Bioeconomy Research  
Frederik A. Dahls vei 20, N-1431 Ås  
Tel: +47 95 84 00 40  
E-mail: anne.falk.ogaard@nibio.no

### Education:

- Cand. Agric. in soil science and plant nutrition, Agricultural University of Norway, 1986. Master thesis: “Nitrogen mineralization in conventional and organic managed soil”.
- Dr.scient. from Agricultural University of Norway, Dept. of Soil and Water Science, 1995. Title of the thesis: “Phosphorus fertilization and plant-available phosphorus in relation to risk of eutrophication”.

### Positions:

- Scholarship holder at Dept. of Soil and Water Sciences, Agricultural University of Norway: 1986-1995. The period includes 3 maternal leaves.
- Research Scientist on the project “Soil analyses of plant available potassium for planning of fertilization” at Dept. of Soil and Water Sciences, Agricultural University of Norway: 1997-1999 (60 % position).
- Research Scientist on the project “Potassium resources in cultivated soils” at Dept. of Soil and Water Sciences, Agricultural University of Norway: 01.01.00 – 31.08.04 (70-80% position).
- Research Scientist on the project “Selenium – optimal plant uptake, without losses” at Dept. of Soil and Water Sciences, Norwegian University of Life Sciences: 01.09.04 – 15.06.05 (40% position).
- Project position at Agricultural Extension Service, SouthEast: 01.09.04 – 15.06.05 (40 % position).
- Research Scientist at Bioforsk, Norwegian Institute for Agricultural and Environmental Research: 16.06.05 – 31.06.15.
- Research Scientist at NIBIO, Norwegian Institute of Bioeconomy Research: 01.07.15 – present. Approved competence for professor’s position February 2018.

### Key qualifications:

Soil chemistry, plant nutrition, mitigation of phosphorus runoff from agriculture, recycling of nutrients in organic waste.

### Teaching experience:

- Teaching and responsible for the undergraduate course “Organic farming” at Dept. of Plant Sciences: 1990.
- Teaching and responsible for the undergraduate course “Soil Analyses” at Dept. of Soil and Water Sciences: 2002.
- Teaching and responsible for the undergraduate course “Pollution – Environment” at Dept. of Soil and Water Sciences: 2003.

### Other experience:

- External sensor for the course “SOIL 212, Soil analysis” at Dept. of Plant and Environmental Science at UMB since 2009.
- External sensor for four Master thesis in 1996, 2011 and 2014 at Dept. of Environmental Science Agricultural University of Norway/UMB/NMBU
- External sensor for one Master thesis at Dept. of Chemistry at Univ. of Oslo in 2012.
- Member of the evaluation committee for two Doctoral theses at the Swedish University of Agriculture (SLU) in 2008 and 2014.
- Co-supervisor for four PhD students.
- Co-supervisor for four Master students, Agricultural University of Norway/UMB/NMBU
- Member of the organizing committee for the NJF seminar 449, “Biotic soil factors and plant growth” in 2012.

- Participant of Cost 869 Action – Mitigation options for nutrient reduction in surface water and groundwaters.

### Some recent projects

- MIND-P, Nutrients in a Circular Bioeconomy: Barriers and Opportunities for Mineral Phosphorus Independence in Norway (2017-2020, WP leader)
- Structure liming and catch crops – mitigation of erosion and phosphorus runoff (2016-2018, project leader)
- Phosphorus fertilization on soils with high phosphorus content (2015-2018, Project leader)
- Choices and opportunities for sustainable use of phosphorus in food production (2012-2017, Project leader)
- Biosolids in food production – phosphorus recycling and food safety (2012-2015, Project leader)
- Strategies for implementation of sound cereal production methods with low loss of pesticides and phosphorus (2013-2016, WP leader)
- The phosphorus project western Vansjø (2008-2010, Project leader)
- Recycling organic waste - effects on soil quality, plant nutrient supply and environmental impact (2006-2010, WP leader)
- Biogas in the agricultural value chain (2008-2011)

### Publications:

33 peer reviewed international papers, 6 peer-reviewed book chapters, 4 Norwegian peer-reviewed papers, 21 conference proceedings and 71 applied articles and reports.

#### *International peer reviewed papers last 5 years*

1. **Øgaard, A.F.** 2014. Nitrogen balance and nitrogen use efficiency in cereal production in Norway. Acta Agric. Scand., Sect. B, Soil and Plant Sci.63, Supplement 2. 146-155.
2. **Øgaard, A.F.** 2015 Freezing and thawing effects on phosphorus release from grass and cover crop species. Acta Agric. Scand., Sect. B, Soil and Plant Sci. 65, 529-536.
3. Wang, Y., Almvik, M., Clarke, N., Eich-Greatorex, S., **Øgaard, A.F.**, Krogstad, T., Lambers, H. & Clarke, J.L. 2015. Divergent and matched responses of root morphology and root exuded organic acids to low phosphorus availability in Norwegian cultivated barley, rapeseed and potato. AoB PLANTS. doi: 10.1093/aobpla/plv097.
4. Hanserud, O.S., Brod, E., **Øgaard, A.F.**, Müller, D.B. & Brattebø, H. 2015. A multi-regional soil phosphorus balance for exploring secondary fertilizer potentials – the case of Norway. Nutr. Cycl Agroecosys, Open Access, doi:[10.1007/s10705-015-9721-6](https://doi.org/10.1007/s10705-015-9721-6).
5. Brod, E., **Øgaard, A.F.**, Hansen, E., Wragg, D., Haraldsen, T.K. and Krogstad, T. 2015. Waste products as alternative phosphorus fertilisers. Part I: inorganic P species affect fertilisation effects dependening on soil pH. Nutr. Cycl Agroecosys, 103(2): 167-185. (doi:[10.1007/s10705-015-9734-1](https://doi.org/10.1007/s10705-015-9734-1))
6. Brod, E., **Øgaard, A.F.**, Haraldsen, T.K. and Krogstad, T. 2015. Waste products as alternative phosphorus fertilisers. Part II: Predicting P fertilisation effects by chemical extraction. Nutr. Cycl Agroecosys, 103(2): 187-199. (doi:[10.1007/s10705-015-9731-4](https://doi.org/10.1007/s10705-015-9731-4))
7. Aronsson, H., Hansen, E.M., Thomsen, I.K., Liu, J., **Øgaard A.F.**, Känkänen, H., & Ulén, B. 2016. The ability of cover crops to reduce nitrogen and phosphorus losses from arable land in southern Scandinavia and Finland – a review. J. Soil and Water Conservation. 71(1): 41-55.
8. Brod, E., **Øgaard, A.F.**, Haraldsen, T.K. and Krogstad, T., Frossard, E., & Oberson, A. 2016. Drivers of phosphorus uptake by barley following secondary resource application, Frontiers in Nutrition, section Nutrition and Environmental Sustainability, Vol.3, article 12. doi: 10.3389/fnut.2016.00012.
9. **Øgaard, A.F.**, and Brod E. 2016. Efficient phosphorus cycling in food production: Predicting phosphorus fertilization effects of sludge from chemical wastewater treatment. Journal of Agricultural and Food Chemistry, DOI: 10.1021/acs.jafc.5b05974
10. Alvarenga, E., **Øgaard, A.F.** & Vrâle, L. 2017. Effect of anaerobic digestion and liming on plant availability of phosphorus in iron- and aluminium-precipitated sewage sludge from primary wastewater treatment plants. Water Science and Technology 75(7): 1743-1752. doi: 10.2166/wst.2017.056.

11. Hanserud, O.S., Lyng, K.-A., de Vries, J.W., **Øgaard, A.F.**, & Brattebø, H. 2017. Redistributing phosphorus in animal manure from a livestock-intensive region to an arable region: Exploration of environmental consequences. *Sustainability* 9, 595: 1-21. doi: 10.390/su9040595.
12. Wang, Y., Krogstad, T., Clarke, N. **Øgaard, A.F.** & Clarke, J.L. 2017. Impact of phosphorus on rhizosphere organic anions of wheat at different growth stages under field conditions. *AoB PLANTS* 9: plx008, doi:[10.1093/aobpla/plx008](https://doi.org/10.1093/aobpla/plx008)
13. Hanserud, O S., Cherubini, F., **Øgaard, A.F.** Müller, D. B. & Brattebø H. 2017. Choice of mineral fertilizer substitution principle strongly influences LCA environmental benefits of nutrient cycling in the agri-food system. *Science of the Total Environment*. Doi:[10.1016/j.scitotenv.2017.09.215](https://doi.org/10.1016/j.scitotenv.2017.09.215)
14. Lunnan, T., **Øgaard, A.F.** & Krogstad, T. 2018. Potassium (K) fertilization of Norwegian grassland – effects on herbage yield, mineral composition, and critical K concentration on soils with different K status. *Grass and Forage Science*, 73:500-509, doi: 10.1111/gfs.12341

*Norwegian peer reviewed papers last 5 years*

1. Krogstad, T., **Øgaard, A.F.** & Skarbøvik, E. 2013. Laboratorieanalyser av suspendert stoff, fosfor og nitrogen i turbide vannprøver – usikkerhet og metodeutfordringer. *VANN* 2013(2): 239-248.
2. Brod, E., Bechmann, M. & **Øgaard, A.F.** 2017. Løst fosfat i jordbruksavrenning – forskjell mellom driftssystemer. *VANN* 2017(1): 47-56.
3. **Øgaard, A.F.**, Vråle, L. & Mengede, M. 2018. Plantetilgjengelig fosfor i kalkfelt slam. *VANN* 2018(2): 212-219.

*Book chapters (peer reviewed) last 5 years*

1. Bechmann, M., **Øgaard, A.F.** & Greipsland, I. 2013. Nitrogen balance in agriculture. In: Bechmann, M. & Deelstra, J. (eds): *Agriculture and Environment - Long Term Monitoring in Norway*. Akademika Publishing, Trondheim. ISBN: 978-82-321-0014-9, p. 43-53.
2. Bechmann, M., Greipsland, I. & **Øgaard, A.F.** 2013. Phosphorus use in agriculture. In: Bechmann, M. & Deelstra, J. (eds): *Agriculture and Environment - Long Term Monitoring in Norway*. Akademika Publishing, Trondheim. ISBN: 978-82-321-0014-9, p. 69-82.
3. Bechmann, M., **Øgaard, A.F.**, Stålnacke, P. & Ulén, B. 2013. Phosphorus concentrations and losses. In: Bechmann, M. & Deelstra, J. (eds): *Agriculture and Environment - Long Term Monitoring in Norway*. Akademika Publishing, Trondheim. ISBN: 978-82-321-0014-9, p. 213-229.
4. Blankenberg, A.G.B., Deelstra, J., **Øgaard, A.F.** & Pedersen, R. 2013. Phosphorus and sediment retention in a constructed wetland. In: Bechmann, M. & Deelstra, J. (eds): *Agriculture and Environment - Long Term Monitoring in Norway*. Akademika Publishing, Trondheim. ISBN: 978-82-321-0014-9, p. 299-314.
5. Kratz, S., Schick, J. & **Øgaard, A.F.** 2016. P solubility of inorganic and organic P sources. In: Schnug, E. & De Kok, L.J. (eds): *Phosphorus in agriculture – 100% zero*. Springer, DOI 10.1007/978-94-017-7612-7 p. 127-154.
6. **Øgaard, A.F.** & Bechmann, M. 2018. Nitrogen balances and nitrogen use efficiency in the Nordic countries. In: Rattan Lal & Stewart, B.A. (eds.): *Soil Nitrogen Uses and Environmental Impacts*. *Advances in Soil Science*, CRC Press, pp 141-150.

*Conference proceedings last 5 years*

1. Bechmann, M., **Øgaard, A.F.** 2013 Water quality changes following intensive focus on mitigation methods to reduce phosphorus losses in the catchment of lake Vansjø, Norway. In: Sisák, I. (ed) *Proceedings of International Conference on Realistic Expectations for Improving European Waters*. ATON - Agro-kémia és Talajtan ON-line [ATON - Agrochemistry and Soil Science ON-line] p. 103-117. <http://www.aton.hu/documents/10156/a6acf379-62fd-4920-9b1c-847ed6393a38>
2. **Øgaard, A.F.** & Krogstad, T. 2014. P applied with sewage sludge – Distribution on soil P fractions and effect on P sorption capacity. Poster at Phosphorus in Soil and Plants, 5<sup>th</sup> International Symposium, Montpellier, France.
3. Brod, E., **Øgaard, A.F.**, Haraldsen, T.K. & Krogstad, T. 2014. Predicting P fertilization effects of waste by chemical extraction. Poster at Phosphorus in Soil and Plants, 5<sup>th</sup> International Symposium, Montpellier, France.
4. **Øgaard, A.F.** 2015. Implications of chemical waste water treatment on efficient P cycles in food production. In: Haneklaus, S., Lombnæs, P. & Schnug, E. 23<sup>rd</sup> International symposium of the international scientific centre for fertilizers. *Plant nutrition and fertilizer issues for the cold climates*, *Berichte Julius Kühn Institut* 184, p. 18.

5. **Øgaard, A.F.**, Kristoffersen, A.Ø. & Almås, Å. 2016. Predicting plant available phosphorus – Is DGT better than classical soil analyses? In: Krämer, I. & Häberle, S. (eds): Phosphorus 2020 – Challenges for synthesis, Agriculture and ecosystems, 8<sup>th</sup> International phosphorus workshop (IPW8), Rostock: 250.
6. Brod, E. & **Øgaard, A.F.** 2016. Decision tool for predicting fertilisation effects of secondary resources. In: Krämer, I. & Häberle, S. (eds): Phosphorus 2020 – Challenges for synthesis, Agriculture and ecosystems, 8<sup>th</sup> International phosphorus workshop (IPW8), Rostock: 200.

*Applied articles and reports last 5 years*

1. **Øgaard, A.F.** 2013. Plantetilgjengelig fosfor i slam. Bioforsk FOKUS 8(2): 209-210.
2. Blankenberg, A.G.B, Deelstra, J. & **Øgaard, A.F.** 2013. Fangdammer – er de effektive? Bioforsk FOKUS 8(2): 51-53.
3. Krogstad, T., **Øgaard, A.F.** & Skarbøvik, E. 2013. Analyser av næringsstoff og suspendert tørrstoff i turbide vannprøver – Sammenligning av resultater fra fem ulike laboratorier. Bioforsk RAPPORT 8(2): 27s.
4. **Øgaard, A.F.** 2013. Plantetilgjengelig fosfor i avløpsslam – Testing av analysemetodikk for tilgjengelig fosfor. Bioforsk RAPPORT 8(34): 23s.
5. **Øgaard, A.F.** 2013. Fosforgjødsling og vannkvalitet. Bioforsk Tema 8(3): 4s.
6. **Øgaard, A.F.** og Greipsland, I. 2014. Fosforkonsentrasjoner i overflate- og grøftevann ved oversvømmelse av dyrka mark. Bioforsk Rapport 9 (85). 40 s.
7. **Øgaard, A.F.**, Knutsen, H., Kårstad, S., Fystro, G., Bechmann, M. og Morken, J. 2014. Konsekvensvurderinger av utkast til revidert forskrift om lagring og bruk av gjødsel til landbruksformål. Bioforsk Rapport 9 (148). 60 s.
8. Sævarson, H., Krogstad, T., Bechmann, M. og **Øgaard, A.F.** 2014. Ny kunnskap om fosfortap gjennom nedvasking. Bondevennen 40/2014: 36-37.
9. Sævarson, H., Krogstad, T., Bechmann, M. og **Øgaard, A.F.** 2014. Målemetode påvirker analyseresultatet. Bondevennen 49/2014: 14-15.
10. Hauken, M., Pedersen, R., **Øgaard, A.F.**, Deelstra, J., Eggestad, H.O., Greipsland, I., Stenrød, M., Fystro, G., Selnes, S., Riley, H., Stubhaug, E., Dreyer, L., Molværsmyr, Å. og Paulsen, L. 2015. Jord og vannovervåking i landbruket (JOVA) - Feltrapporter fra programmet i 2013. Bioforsk RAPPORT 10(73). 46 s.
11. **Øgaard, A.F.** og Pedersen, R. 2016. Kartlegging av fosfor i jord rundt Tunevannet. NIBIO Rapport 2 (26). 21 s.
12. **Øgaard, A.F.**, Kristoffersen, A.Ø. Bechmann, M. 2016. Utredning av forslag til forskriftskrav om tillatt spredemengde av fosfor i jordbruket. NIBIO Rapport 2 (131). 49 s.
13. Kristoffersen, A.Ø., **Øgaard, A.F.** 2017. Fosforgjødsling på jord med høyt fosforinnhold. Jord- og Plantekultur 2017. NIBIO BOK 3(1): 120-123.
14. Hauken, M., Stenrød, M. & **Øgaard, A.F.** 2017. Spesialundersøkelse av nitrogen- og fosforkonsentrasjoner i Heia, et nedbørfelt i program for jord- og vannovervåking i landbruket (JOVA). NIBIO Andre publikasjoner 3 (4). 27 s.
15. Blytt, L.D., Brod, E., **Øgaard, A.F.**, Johannessen, E., Estevez, E.M.E. & Paulsrud, B. 2017. Bedre utnyttelse av fosfor. COWI Rapport, 001-A084596. 60 s.
16. **Øgaard, A.F.** 2017. Tilgjengelig fosfor i kalkfelt avløpsslam. NIBIO Rapport 3(116). 27 s.
17. Haraldsen, T.K., Brod, E. & **Øgaard, A.F.** 2018. Kvalitetskriterier og merkekrav for organiske avfallsmaterialer. Forslag til endringer i forskrift om gjødselvarer mv. av organisk opphav. NIBIO Rapport 3(156). 38 s.
18. Bechmann, M, **Øgaard, A.F.** & Engebretsen, A. 2018. Risiko for fosfortutvasking fra jord i Farstadvassdraget. NIBIO Rapport 4(90). 18 s.
19. Kristoffersen, A.Ø. & **Øgaard, A.F.** 2018. Fosforgjødsling til korn bestemt av P-AL. NIBIO POP 4(23). 4s.
20. Bechmann, M., **Øgaard, A.F.** & Veidal, A. 2018. Fosforgjødsling på arealer med meget høye fosforverdier – Landbruksrådgivningens forhold til gjødslingsanbefalingene. NIBIO Rapport 4(71). 35 s.
21. Bechmann, M., Greipsland, I., Skarbøvik, E. & **Øgaard, A.F.** 2018. Tiltakseffekter i vestre Vansjø – sammenligning av tiltak og vannkvalitet i seks bekkefelt. NIBIO POP 4(15). 8s
22. **Øgaard, A.F.**, Hanserud, H., Bechmann, M., Kristoffersen, A.Ø. & Molversmyr, Å. 2018. Strid om fosforgjødsling. Bondevennen nr 20 2018, s 32 (leserinnlegg)