

Curriculum vitae - Anne-Kristin Løes

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General information:

Date of birth January 10th, 1961
Nationality Norwegian
Spoken languages Norwegian, English, German.

Main education:

M.Sc. in soil sciences at the Agricultural University of Norway, Ås, 1986.
Doctor Scientiarum in plant nutrition and soil chemistry at the Norwegian University of Life Sciences, NMBU (formerly the Agricultural University of Norway), Ås, 2004.

Title of Dr.Sc. thesis:

Studies of the availability of soil phosphorus (P) and potassium (K) in organic farming systems, and of plant adaptations to low P- and K-availability. Doctor Scientiarum Thesis 2003:29, NMBU. ISSN: 0802-3220 ISBN: 82-575-0569-2, 117 p.

Current and former employment:

Since January 1, 2016: Senior researcher in Norwegian Centre for Organic Agriculture, Tingvoll.
2006-2015: Senior researcher in Bioforsk Norwegian Institute of Agricultural and Environmental Research, Organic Food and Farming division.
1988-2005: Researcher in Norwegian Centre for Ecological Agriculture (part of Bioforsk 2006-2015).
1998-2000: Editor of Herba, the Norwegian journal on biodynamic farming (part-time position)
1987-1988: Teacher in mathematics and biology grade 9-11, Waldorf School in Moss, Norway
1986-1987: Research assistant on the project "Acid rain research, terrestrial ecosystems", describing 75 soil profiles in spruce forests in Norway and W. Germany.

Completed and ongoing projects that I (have) lead or coordinate(d):

2019-2020: Organic potatoes in Mid-Norway – the potential of early cultivars and good agronomy. Funded by the Regional Research Fund Mid-Norway (RFF-Midt) and the county governor's agricultural departments in Trøndelag and Møre og Romsdal.
2017-2020: *Marine rest raw materials for fertilizers to organic agriculture*. Funded by Møre and Romsdal county council.
2016-2018: *Quality grains for food – the potential of non-commercialized Norwegian varietal material*. Funded by the Norwegian Agriculture Agency, and the county governor's agricultural departments in Oppland and Trøndelag.
2016-17: *Reduced nitrogen emissions from digestate with application of marble*. Funded by RFF-Midt.
1988-1992: *The "Thirty farm-project"*. Funded by the Agricultural Agreement Fund (AAF).
1993-96: *Agronomy and economy in organic farming – whole farm case studies*. Funded by AAF.
2003-04: *Combined nutrient supply and weed regulation in organic vegetable production by grass mulch*. Funded by the Norwegian Agricultural Authority (SLF).
2007-08: *Reasons for opting out of certified organic production in Norway*. Funded by the Research Council of Norway (RCN) and AAF.
2007-10: *innovative Public Organic food Procurement for Youth (iPOPY)*. Funded by the CORE Organic I Funding Body Network (ERA-net).
2010-2014: *Effects of anaerobically digested manure on soil fertility - establishment of a long-term study under Norwegian conditions (SoilEffects)*. Funded by RCN (EnergiX) and AAF.
2011: *Farm based biogas plants in Mid-Norway, qualification project to reveal knowledge gaps (Biogasskunnskap)*. Funded by RFF-Midt.
2012-14: *Documentation of energy production and GHG emissions in a farm level biogas plant digesting animal manure and various types of fish waste (Biogasdok)*. Funded by AAF.

Completed and ongoing projects where I have been/am a WP leader:

2019-2023: Farmers and the city: enhancing added value and sustainability through optimized use of urban and peri-urban farm resources. Research project funded by RCN.
2018-2021: Organic-PLUS: Pathways to phase-out contentious inputs from organic agriculture in Europe.

RIA-EU project funded by Horizon 2020, coordinated by Coventry university, UK. Leader of WP5, Soil. 2013-2017: *Total utilization of raw materials in the supply chain for food with a bio-economical perspective (Cycle)*. Research project funded by RCN (Bionær). Leader of WP3: Bio-processing of waste for feed, fertilizer and energy.

2014-2017: *Helhetlig bioØkonomisk utnyttelse av verpehøNE (HØNE) (Holistic bioEconomical utilisatioN of laying hens)*. Research project funded by the RFF Midt. Leader of WP3: Utilization of laying hens as feed and fertilizer.

2013-16: *IMproved Phosphorus Resource efficiency in Organic agriculture Via recycling and Enhanced biological mobilization (Improve-P)*. Funded by the CORE Organic II Funding Body Network. Leader of WP4: Stakeholder perceptions about applicability of alternative P fertilizers in organic farming.

Other relevant experience and positions:

- Member of the board of ISOFAR, International Society for Organic Farming Research 2008-2020. Vice president 2011-2017, treasurer 2018-2020.
- Norwegian editor of the digital archive Organic E-prints, www.orgprints.org 2005-2015
- Leader of planning committee NJF seminar 461, “Organic farming systems as a driver for change”, Bredsten, Denmark August 21-23 2013
- Member of planning committee NJF seminar 401, “Phosphorus management in Nordic-Baltic agriculture – reconciling productivity and environmental protection“, Uppsala, Sweden September 22-23, 2008
- Leader of planning committee NJF seminar 369, “Organic farming for a new millennium – status and future challenges”, Alnarp, Sweden June 15-17, 2005
- Member of assessment committee for Annbjørg Øverli Kristoffersen, Dr.scientiarum; doctoral thesis: “Availability and utilization of soil and fertilizer phosphorous with focus on starter fertilization in spring cereals”, published by the Norwegian Crop Research Institute and NMBU, 2005
- Member of assessment committee for Siri Pugesgaard, PhD; doctoral thesis: “Environmental effects of agricultural production of biomass for energy on arable land”. Institute for Agroecology, Faculty of Science and Technology, Aarhus University, Denmark. June 2014
- Opponent for Tora Råberg, PhD, doctoral thesis: “Strategic nitrogen management in stockless organic cropping systems”. Faculty of Landscape Architecture, Horticulture and Crop Production Science, Dep. of Biosystems and Technology, Alnarp. Swedish University of Agricultural Sciences, Acta Universitatis agriculturae Sueciae 2012:2017. ISSN 1652-6880.
- Lectures and censorship (4 M Sc theses) at NMBU
- Paper and proposal review, several journals and funding bodies
- Associated editor of the scientific journal Organic Agriculture (Springer)

Scientific publications in English 2020-2016, papers published in peer-reviewed journals in bold:

Løes AK 2020. **Feeding the reactors: potentials in re-cycled organic fertilisers**. Organic Agric. doi 10.1007/s13165-020-00314-2

Løes AK, Khalil R, McKinnon K 2020. **Exhaust Gas Concentrations and Elemental Losses from a Composting Drum Treating Horse Manure**. Compost Sci. Util. 28: 36-48. doi: 10.1080/1065657X.2020.1749182

Løes AK, Frøseth RB, Dieseth, JA, Skaret J, Lindö C 2020. **What should organic farmers grow: heritage or modern spring wheat cultivars?** Organic Agric. doi 10.1007/s13165-020-00301-7

Ahuja I, Dauksas E, Remme JF, Richardsen R, Løes AK 2020. Fish and fish waste-based fertilizers in organic farming – With status in Norway: A review. Waste Management 115: 95–112. doi /10.1016/j.wasman.2020.07.025

Løes AK, Adler S 2019. **Increased utilisation of renewable resources: dilemmas for organic agriculture**. Organic Agric. 9:459–469 doi /10.1007/s13165-018-00242-2

Ahuja I, Løes AK 2019. Effect of fish bones and algae fibre as fertilisers for ryegrass. NORSØK report Vol.4 No. 7, 2019, 64 p.

Rittl T, Krogstad T, Eikås S, Saltnes T, Sørensen G, Glestad HE, Løes AK 2019. Effects of struvite application on soil and plants: a short-term field study. NORSØK report Vol 4 No. 10, 2019, 38 p.

Adler SA, Slizyte R, Honkapää K, Løes AK 2018. **In vitro pepsin digestibility and amino acid composition in soluble and residual fractions of hydrolyzed chicken feathers**. Poult Sci. 97(9):3343-

3357. doi: 10.3382/ps/pey175.

Cooper J, Reed EY, Hörtenhuber S, Lindenthal T, Løes AK, Mäder P, Magid J, Oberson A, Kolbe H, Möller K 2018. **Phosphorus availability on many organically managed farms in Europe**. *Nutrient Cycl. Agroecosyst.* doi 10.1007/s10705-017-9894-2.

Möller K, Oberson A, Bünemann EK, Cooper J, Friedel JK, Glæsner N, Hörtenhuber S, Løes AK, Mäder P, Meyer G, Müller T, Symanczik S, Weissengruber L, Wollmann I, Magid J. **Improved phosphorus recycling in organic farming: navigating between constraints**. *Advances in Agronomy* 147: 159-237. doi: 10.1016/bs.agron.2017.10.004

Løes AK 2017. Laying hens for soil fertilization. *NORSØK Report Vol 2(13)*, 31 p. Norwegian Centre for Organic Agriculture, Tingvoll, Norway.

Løes AK, Ebbesvik ME 2017. Phosphorus deficits by long-term organic dairy farming? In: Rahmann, G. et al. (2017) *Proceedings of the Scientific Track "Innovative Research for Organic Agriculture 3.0"*, Organic World Congress 2017 in New Delhi, India, November 9-11, 2017, p. 530-533.

Løes AK, Sandquist J, Meyer G 2017. **Elemental composition and phosphorous availability in hydrochars from seaweed and organic waste digestate**. *Acta Agric. Scand. Sect. B Pl Soil Sci*, doi 10.1080/09064710.2017.1363909

Pommeresche R, Løes AK, Torp T 2017. **Effects of animal manure application on springtails (Collembola) in perennial ley**. *Applied Soil Ecology* 1001: 137-145.

Rahmann G, Ardakani MR, Barberi P, Boehm H, Canali S, Chander M, David W, Dengel L, Erismann JW, Galvis-Martinez AC, Hamm U, Kahl J, Koepke U, Kuhne S, Lee SB, Løes AK, Moos JH, Neuhof D, Nuutila JT, Olwe V, Oppermann R, Rembialkowska E, Riddle J, Rasmussen IA, Shade J, Sohn SM, Tadesse M, Tashi S, Thatcher A, Uddin N, Fragstein P, Wibe A, Wivstad M, Wenliang W, Zanolli R. 2017. **Organic agriculture 3.0 is innovation with research**. *Organic Agric.* 7 (3): 169-197.

Løes AK, Pommeresche R, Khalil R 2017. Effects of marble application to manure and anaerobic digestates. *NORSØK report vol 2, no. 5 2017*. NORSØK, Tingvoll. 29 p.

Løes AK, Bünemann E, Cooper J, Hörtenhuber S, Magid J, Oberson A, Möller K 2016. **Nutrient supply to organic agriculture as governed by EU regulations and standards in six European countries**. *Organic Agric.* 7: 395–418, doi 10.1007/s13165-016-0165-3

Løes AK 2016. What does the organic sector think about different P fertilizers? *NORSØK report 1(3) 2016*, Norwegian Centre for Organic Agriculture, Tingvoll, 40 p.

Bünemann E, Symanczik S, Mäder P, Løes AK 2016. Rezyklierte Phosphordünger – was die Branche davon hält. *Bioaktuell* 5 p. 13/Engrais phosphatés de recyclage – Ce que le secteur bio en pense. *Bioactualités* 6, p. 12.

Papers published in peer-reviewed journals before 2016:

Johansen TJ, Thomsen MG, Løes AK, Riley H 2015. Root Development in Potato and Carrot Crops – Influences of Soil Compaction. *Acta Agriculturae Scandinavica, Section B - Plant Soil Science*, 65 (2), 182-192.

Pommeresche R, Løes AK 2014. Diversity and density of Collembola in a grass-clover ley in North-western Norway. *Norwegian Journal of Entomology* 61, p. 165-179.

Koesling, M., Løes, A.-K., Flaten, O., Kristensen, N.H. & Weinreich, M. 2012. Farmers' reasons for deregistering from organic farming. *Organic Agriculture* 2: 103–116.

Løes, AK, Eltun R, Sjørusen H, Henriksen TM 2011. Repeated use of green manure catch crops in organic cereal production – grain yields and nitrogen supply. *Acta Agriculturae Scandinavica, Section B - Plant Soil Science* 61: 164-175.

Ward A, Løes AK 2011. The potential of fish and fish oil waste for bioenergy generation: Norway and beyond. *Biofuels* 2(4): 375–387.

Løes AK, Nölting B 2011. Increasing organic consumption by school meals – lessons learned in the iPOPY project. *Organic Agriculture* 1: 91-110.

Flaten O, Lien G, Koesling M, Løes AK 2010. Norwegian farmers ceasing certified organic production: Characteristics and reasons. *Journal of Environmental Management* 91: 2717-2726.

Pommeresche R, Løes AK 2009. Relations between Agronomic Practice and Earthworms in Norwegian Arable Soils. *Dynamic Soil Dynamic Plants (Special Issue 2)*, p. 129-142.

Løes AK, Gahoonia TS 2004. Genetic variation in specific root length in Scandinavian wheat and barley accessions. *Euphytica* 137: 243-249.

Riley H, Løes AK, Hansen S, Dragland S. 2003. Yield responses and nutrient utilization with the use of chopped grass and clover material as surface mulches in an organic vegetable growing system. *Biological Agriculture and Horticulture* 21: 63-90.

Løes AK, Øgaard 2003. Concentrations of soil potassium after long-term organic dairy production. *International Journal of Sustainable Agriculture* 1: 14-29.

Øgaard AF, Krogstad T, Løes AK 2002. Potassium uptake by grass from a clay and a silt soil in relation to soil tests. *Acta Agriculturae Scandinavica, section B, Soil and Plant Science* 51: 97-105.

Watson CA, Bengtsson H, Ebbesvik M, Løes AK, Myrbeck Å, Salomon E, Schroder J, Stockdale EA 2002. A review of farm-scale nutrient budgets for organic farms as a tool for management of soil fertility. *Soil Use and Management* 18 supplement, Soil fertility in organically managed soils, p. 264-273.

Løes AK, Øgaard AF 2001. Long-term changes in extractable soil phosphorus (P) in organic dairy farming systems. *Plant and Soil* 237: 321-332.

Løes AK, Øgaard AF 1997. Changes in the nutrient content of agricultural soil by conversion to ecological farming, compared to clay content and farm nutrient budgets. *Acta Agriculturae Scandinavica, section B, Soil and plant science* 47: 201-214.

Selected publications in Norwegian 2020-2016:

- Løes AK, Almås A, Bernhoft A 2020. Stor satsing på tare – men hva med restene? Innlegg i *Nationen* 16.7.2020, s 18.

- Løes AK, Frøseth RB, Dieseth JA, Lindö C, Skaret J 2019. Kvalitetskorn til mat – muligheter i ikke-kommersialisert norsk sortsmateriale. Forsøk med vårhvete til økologisk dyrking og håndverksbakst. *NORSØK rapport vol 4. no. 5*, 56 s.

-Løes AK, Eikås S 2019. Ta fosforet tilbake. *Kronikk, Nationen* 24.9.2019 s 18.

-Løes AK, Frøseth RB, Dieseth JA 2019. Passer moderne vårhvetesorter for økobonden? Del 1 *Økologisk landbruk* 38 (2): 30–31; Del 2 *Økologisk landbruk* 38 (3): 31–33.

-Løes AK 2019. Ta fosforet tilbake! *Økologisk landbruk trenger resirkulering. Økologisk landbr.* 38 (4): 8–9.

- Løes AK 2018. Økologisk verdenskonferanse i India. www.agropub.no 28.2.2018.

- Løes AK, Dieseth JA, Frøseth RB Vårhvete til håndverksbaking – viktige egenskaper for økologisk dyrking. www.agropub.no 25.7. 2018.

- Cabell J, Løes AK 2018. Forsøk med fermentering av husdyrgjødsel. *NORSØK Rapport nr. 8*, 2018.

-Mjøen GT, Carvajal AK, Slizyte R, Rustad T, Løes AK 2017. Fra restråstoff til verdifulle råvarer. *Fjørfe* 9-17, s. 35-37.

-Løes, AK 2017. Høner som gjødsel? *Fjørfe* 8-17, s. 35-37.

-Løes AK 2017. Hva gjør vi med slakteklare verpehøns? *Økologisk landbruk* 3-2017, s. 14-16, og *Agropub* <https://www.agropub.no/fagartikler/hva-gjor-vi-med-slakteklare-verpehons>

-Løes AK 2017. Mangfold i åkeren, og vafler fra førkorn. *Agropub* 26. juli 2017.

-Løes AK 2016. Å strebe etter gode regler. *Økologisk landbruk* 4 (2016), s. 39-41.

Løes AK 2016. Såfrø- livsviktig og sårbart. *Økobloggen* 15. april 2016, forskning.no

-Løes AK 2016. Den vanskelige resirkuleringa. *NORSØK nettside* 22. august 2016

-Løes AK 2016. Hva slags korn trenger vi å foredle i Norge? *Hamar Arbeiderblad* 16. juli 2016 s. 34.