



People active in the organic sector in Norway gathered to discuss the use of inputs in organic farming, in connection with the EU-project Organic-PLUS, in October 2019 on the biodynamic farm Fokhol near Hamar, Norway. From left, Inger Ivarrud - farmer at Fokhol; Gerald Altena, Debio; Nikolaos Katsoulas, University of Thessaly, Greece; Frank Oudshoorn, SEGES, Denmark; Gunnar Vittersø, Oslo Metropolitan University; Kari Marte Sjøvik, Norwegian Farmers' Union; Hans Gaffke, Norwegian Agricultural Extension Service (NLR); Liv Astrid Eikeland, Ministry of Agriculture and Food; Kjersti Berge, NLR; Minoca Wear Stubberud, Norwegian Food Safety Authority; Isabell Lien, NOFIMA; Grete Lene Serikstad, NORSØK; Ingrid Strømstad FK Agri; Lene Nilssen, Debio; Tone Roaldkvam, Tine; Jon Mjærum, NLR; Hanne Torjusen, Oslo Met. University; Sigrid Mogan, NLR; Kari Bysveen, NLR; Finn Avdem, Nortura; Pierre Sachot, Biodynamic Association; Børre Solberg, Organic Norway. (Photo: Anne-Kristin Løes)

Discussing contentiousness in a stagnated organic sector

ANNE-KRISTIN LØES *17 February 2020 09:33 (Updated: 16 March 2021 09:58)*

Twenty-five people active in research, extension, certification and industry related to organic production came together in October 2019 to discuss inputs used in organic growing in Norway, and possible effects of phasing out common inputs such as conventional manure, and copper for plant protection. Experienced advisors warned against phasing out any inputs from already quite vulnerable farming systems. The lack of growth in the Norwegian organic sector since 2010 may affect the capacity to cope with changes in practice.

Organic Scandinavia?

In contrast to the situation in other Scandinavian countries, the number of organic farms as well as the area managed organically in Norway has decreased since 2010 and has never been above 3000 farms. By 2018, about 2000 farms and 4.4% of the farmland was managed organically (SSB (Lenke: <https://www.ssb.no/natur-og-miljo/artikler-og-publikasjoner/attachment/380271?ts=16970bfc590>)). The consumption of organic food had a slow, but steady increase in the same period, but still comprises only 2% (Lenke: <https://www.landbruksdirektoratet.no/no/miljo-og-okologisk-okologisk-landbruk/marknadsovervaking/fortsatt-vekst-i-salget-av-%C3%B8kologisk-mat>) of the total turnover of food products. This may seem surprising in a country with generally high income. In Sweden and Denmark, the proportion of organic food by 2018 was around 10% (Lenke: <http://www.ekoweb.nu/attachments/67/37.pdf>), and the organic production is also much higher and more diverse than in Norway. One important explanation for this remarkable difference is a much stronger, and stable support for using organic food in public procurement in Denmark and Sweden.

The stagnating production is not explained by lack of capacity in extension service or certification, where a relatively strong system of support has been established in Norway. Norwegian organic farmers have had access to a national certification body (Debio) since 1987, and to experienced advisors in the Norwegian Agricultural Extension Service since 1983. Debio was established in 1986 as a private label, has become public support since 1987, and was recognised as a national certification body when Norway implemented the EU regulations on organic agriculture in 1994 as part of the EEA agreement. Research and developmental work to promote organic production in Norway has been carried out by the Norwegian Centre for Organic Agriculture (NORSØK) and several other research institutes since 1986. The lack of interest in organic management and consumption is likely better explained by other factors, e.g. a generally positive impression of conventional farming practice in Norway, and lack of political support.

On this background, a project aiming at phasing out contentious inputs from organic farming across Europe may not be exactly what Norwegian organic farmers and advisors call for. Still, initiatives and activities on European level possibly affecting the regulations for organic production, are highly relevant for the organic sector in the non-EU-member state of Norway because the EU-regulations govern organic production and certification in this country (and Iceland, Lichtenstein) since 1994 according to an European Economic Area (EEA) agreement. Hence, there was a high interest to participate in a workshop to discuss project activities and outputs of the Horizon 2020-project “Pathways to phase-out contentious from organic agriculture in Europe” (Organic-PLUS, <https://organic-plus.net/>) in a Norwegian context, financially supported by the Research Council of Norway. Invited participants were members of the National board of organic regulations, appointed by the Norwegian Food Safety Authority (NFSA) which is the national body responsible for organic regulations in Norway, and experienced advisors within different cropping systems from the Norwegian Agricultural Extension Service (in Norwegian “Norsk landbruksrådgivning”, NLR). The venue was Fokhol farm in Stange, nearby Hamar, and the workshop was due on October 28-29, 2019. The program and all presentations are available in [Organic E-prints](https://orgprints.org/36650/) (Lenke: <https://orgprints.org/36650/>).

Protected cropping and needs for plant protection

From the Organic-PLUS (O+) project, two researchers were invited to present project outputs and increase the understanding of organic production on a European level. From Greece and the University of Thessaly, [Dr. Nikolaos Katsoulas leader of WP3](https://orgprints.org/36650/20/Katsoulas%20Fokhol%20Oct%2028_2019%20mediterranean.pdf) (Lenke: https://orgprints.org/36650/20/Katsoulas%20Fokhol%20Oct%2028_2019%20mediterranean.pdf) (the largest WP in O+) had the first workshop presentation. Being an expert in the construction and monitoring of protected cropping structures, he explained very well why greenhouses are necessary in countries where the weather should be warm enough for growing the plants outdoor. Inputs such as water, fertilisers and plant protection products may be much more efficiently utilised in a greenhouse or otherwise physically protected environment, and it may also be required to reduce temperatures by shadowing to make the plants survive extraordinarily high temperatures.

Whereas hydroponics, with organic fertilisers, is currently still accepted as an organic practice in the US (but not in Canada), the EU recently decided that greenhouse crops must be grown in real soil with contact to the subsoil, not in restricted volumes of soil e.g. in bags or demarcated beds. This will pose a significant challenge in future, also to the few Norwegian greenhouse producers of organic tomato and cucumber. While hydroponics is clearly rejected for organic in Europe the discussion on growing in beds or plant pots with real soil not connected to the subsoil is still ongoing, also because roof-top gardens, watercress, herbs and mushrooms are already grown in systems with no connection to the subsoil and can be certified organic.

Nikolaos Katsoulas further presented the results from an O+ study across 10 European countries of inputs used in crop protection, especially copper, mineral oil and sulphur. These inputs are mainly applied to field crops, such as grapes, olives, citrus, other fruit, potatoes and field-grown tomatoes. Mineral oil is most often used against aphids and may be replaced by vegetable oil; hence relatively easy to phase out. Sulphur and copper (Cu) are both plant nutrients and restricting their use for plant protection may be masked by farmers claiming to use them as fertilisers. To some extent,

they can also replace each other; e.g. in Denmark where there is a national ban of copper in organic production (i.e. no product is licenced to use), the use of sulphur is quite intensive in fruit growing. Copper was not permitted for use in organic production in Norway until 2017, when Norway finally implemented the regulation on organic production 889/2008. An exemption was given for the use of copper in berries in 2011 until 2017, and in fruit in 2012 until 2017, for farmers being members of NLR, but the use in Norway is still quite restricted. In the EU, the limit was reduced in 2019 from 6 kg Cu per hectare and year to 4 kg per hectare and year or higher concentrations up to maximum 28 kg over 7 years. This will be a significant challenge in south-European countries, where e.g. in Greece, doses of 16-17 kg Cu per hectare and year may be applied in olives in conventional farming. Better decision support systems, based on weather forecast, is one method being further developed in Organic-PLUS which may contribute to reduce the consumption of this mineral in organic (and conventional?) growing, to protect living organisms in soil and water. There are also many field and controlled conditions experiments to evaluate or improve the performance of alternatives to copper such as the use of plant defence stimulators, biocontrol agents and essential oils, or alternative management strategies such as using resistant cultivars or decision support systems and management tools. One way to evaluate such alternatives is laboratory experiments dedicated to investigate modes of action, in order to facilitate the transfer of the lab-efficacy of the alternatives to field conditions. Another method is in-vitro assessment of the performance of alternatives against major fungal and bacterial pathogens important in organic crops. Trials are also carried out in field, where candidate products e.g. to replace copper, or to complement alternative strategies, are assessed.

Fertilisers, peat and plastic

The study of plant protection inputs also included an assessment of other inputs used in organic growing, such as peat in growing media, plastic especially for mulching, and commercial fertilisers plus manure from non-organic management. Dr. Anne-Kristin Løes, NORSØK presented the results ([Lenke](#)):



Significant amounts of peat are used in growing media for potted organic herbs. Can this be replaced by alternative substrates, such as composted horse manure? (Photo: Anita Land)

https://orgprints.org/36650/15/Loes%20Fokhol%20Oct%2028_2019%20presentation.pdf which were based on information from experienced advisors and farm managers who described all use of inputs during a whole growing cycle for 4-6 important crops in each country. Whereas organic standards in the US have taken a clear position against the use of plastic for mulching, the EU regulations do not mention plastic at all. The use of peat in growing media seems to be on the same level as in conventional growing, and the purchase of transplants is very common. Dried poultry manure, often from conventional farming, is a common fertiliser product in all countries. A multitude of fertiliser products are in use, many derived from residual materials after production of sugar (vinasse) or potato starch (protamylasse). Fertilisers from animal residual materials were often made from hides. However, many fertiliser factories do not explain which raw materials are used and this is a regulatory gap as food manufactures do have to list ingredients for the consumer.

Changing regulations—how to influence?

The second foreign guest was [Dr. Frank Oudshoorn from SEGES, Denmark](#) ([Lenke](#): https://orgprints.org/36650/16/Oudshoorn%20Fokhol%20Oct%2028_%202019%20EGTOP.pdf). For his PhD Frank worked on adapting new technologies (e.g. robot milking) to organic management. Since 2018, he is a member of the Expert Group for [Technical advice on Organic Production \(EGTOP\)](#) ([Lenke](#): https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/co-operation-and-expert-advice/egtop-reports_en), appointed by the European Commission. EGTOP provides advice to the Commission concerning the authorisation of products, substances and techniques to organic farming lenke. In practice, they decide what is included, or not, in the many Annexes to the organic production regulations. When new items are considered for inclusion in an Annex, a dossier is made to discuss pros and

cons, assess the item and draw a conclusion to justify why EGTOP recommends permitting the item in organic production, or not. EGTOP has 12 members, which are appointed for 4 years based on their qualifications and competences, not representing any employer or organisation. According to Frank's perspective, organic production in Europe has a rapid growth and is moving from being a niche towards being a future farming system for many to consider. The larger scale of organic production also implies that regulations and inputs must be re-evaluated, to support the growth in a sustainable way. Recycling of organic matter and nutrients is emphasised in regulations, but in practice hampered by the listing of inputs in Annexes. A crucial question is the management of soluble nutrients. While the regulations restrict this, liquid manure and urine contain high concentrations of soluble nutrients, like ammonium. Until now, some recycled fertilisers, e.g. digestate from production of biogas, have become permitted under conditions that they are not applied to edible parts of the crop. Frank presented the case of struvite (magnesium-ammonium phosphate which may be precipitated in sludge and liquids rich in nutrients, e.g. sewage), which was recommended by EGTOP in 2016 to be permitted in organic production provided that the mineral is approved in the general fertiliser regulation of the EU. When solubilised in the soil, this ammonium will be a soluble nutrient and resembles fertiliser mineral N – which is explicitly forbidden in organic production. On the other side, EGTOP has not (yet) recommended to approve stripped nitrogen (N) from air being rich in ammonia (NH₃), even if it might be an environmentally friendly practice e.g. to feed microalgae by such N. Dossiers for assessing e.g. a new type of recycled fertiliser may be submitted to EGTOP by individuals, organisations and institutions. They must be written in English, and there is a template available. Norway has submitted some dossiers, and the Norwegian food safety authority has experience in the procedure and requirements. EGTOP makes assessments on general substances, not on commercial products. Hence, Norwegian producers of relevant materials which may be applied in organic production, e.g. fertilisers derived from marine organisms, may utilise this opportunity to increase the availability of fertilisation inputs.

High prices scare the consumer

From the Organic-PLUS project, Dr. Gunnar Vittersø ([Lenke: http://www.ekoweb.nu/attachments/67/37.pdf](http://www.ekoweb.nu/attachments/67/37.pdf)) from Oslo Metropolitan University presented results of a survey comparing consumers in France, Germany, Italy, Norway, Poland, Spain and the UK. The Norwegian organic label (Ø) was very well recognised, whereas very few Norwegian consumers recognised the EU label (a green leaf). Norwegian consumers had a remarkably higher trust in public authorities than in the other countries. Likewise, Norwegian consumers to a larger extent disagreed with statements such as “organic farming is good for animal welfare, , own health, health of farmer, climate etc.). The most important reason in all countries not to buy organic, was higher price. People welcomed stricter regulations, especially on antibiotics in animal husbandry, but only few wanted a complete ban of antibiotics, copper etc. in organic production. Sigrid Mogan from the Norwegian Agricultural Extension Service, advisor in growing of fruit and berries, commented that when asked about specific inputs and chemical terms, consumers tend to be sceptical. E.g. consumers were equally negative to iron (which is seen as something positive in relation to human health) and copper in an informal survey among consumers in a Norwegian apple festival, and it is well known that if water is described with its chemical name, H₂O, many people get very sceptical to an input which is essential for life.

From the Norwegian food safety authority (NFSA), Monica Wear Stubberud ([Lenke: http://www.ekoweb.nu/attachments/67/37.pdf](http://www.ekoweb.nu/attachments/67/37.pdf)) presented the relationship between Norway as a non-member state, and the EU with respect to organic regulations. Along with Iceland and Switzerland, Norway participates actively as observatory countries in COP (the Committee for Organic Production). Norway has the possibility to actively participate in the discussions and influence the development of the rules, but has no right to vote. Since the organic regulation is valid in Norway as a part of the EEA agreement, changed regulations must be implemented in the EEA agreement before entering into Norwegian law. A public body called “Special body for the food sector”, composed of representatives from the NFSA and the Ministries of Agriculture and Food, Climate and Environment, Foreign affairs and Finance, consider if new organic regulations are acceptable or if there are need for any negotiation about technical adaption text. EFTA may be used to negotiate with the EU, and there are several horizontal regulations (e.g. related to plant health) which are relevant for organic production but not part of the EEA-agreement. It is possible, but quite difficult, to receive a special adaptation text e.g. due to climatic conditions. Before EU regulations are implemented as Norwegian law, there has to be



In the neighbour country Sweden, where this photo is taken, the offer of organic products in food shops is much broader, and the organic consumption much higher, than in Norway. (Photo: Anita Land)

a round of hearing, possibly with consequences evaluated and sometimes with reference to assessments initiated by the Norwegian board of regulations. Hence, in principle, also non-member states may influence new regulations, changing Annexes etc., but the possibility to influence the regulation is best if proposals are presented early in the process of developing new regulation. The same is valid for the EU Member states.

Stubberud then presented the new [EU regulation on organic production, 2018/848 \(EU\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2018.150.01.0001.01.ENG) (*Lenke: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2018.150.01.0001.01.ENG*) to be implemented in the EU in 2021, emphasising changes which will affect Norwegian farmers and producers. She highlighted the background for the revision of regulations, where one important reason was to promote organic production in accordance with organic principles and reduce the possibilities for exemptions. There will be stricter requirements for locally produced and certified organic feed, which will be challenging, especially for poultry. Due to low production of organic cereals, “local” has until now been interpreted as “Norwegian” (or, within the United Kingdom as coming from the UK). Will this comply with future interpretation of regulations? Other changes in animal husbandry include bans on indoor production of cattle for beef. There will be stricter demands for organic seeds and other breeding materials. As already mentioned, existing demarcated beds in greenhouses will be phased-out and new systems with this growing method cannot be certified as organic. The regulations will include new products, such as deer, insects and salt, and hence allow for new types of organic production.

No motivation for banning conventional manure in Norway

The final speaker of the day was [Kjersti Berge](https://orgprints.org/36650/19/Berge%20Fokhol%20Oct%2028_2019%20obstacles.pdf) (*Lenke: https://orgprints.org/36650/19/Berge%20Fokhol%20Oct%2028_2019%20obstacles.pdf*), coordinating activities related to organic production in the Norwegian Agricultural Extension Service (in Norwegian “Norsk landbruksrådgivning”, NLR). With totally 330 advisors spread across the whole country, serving 26 000 farmers being member in NLR, this organisation efficiently represents organic farming practice in Norway, synthesising the experiences and challenges of most organic farmers. Kjersti questioned the term “contentious”, emphasising that what is contentious to a stakeholder is determined by the main motivation; if the driver is health and high quality, less inputs may be accepted than if the main motivation is environment and climatic change.

The main inputs in organic farming in Norway which may pose significant challenges if phased out, are animal manure from non-organic management and other fertilisers such as mineral fertilisers (e.g. poly-sulphate). For digestate, only few biogas plants have yet been approved for delivering fertiliser products to organic production, because not only the substrates for digestion but also chemicals used during processing must comply with strict regulations, and general regulations e.g. limits for content of plastic residues may be a challenge. In cropping systems for high-value crops, the producer will be more reluctant to trying alternative strategies and solutions. Frank commented that in Denmark, where requests for phasing out non-organic manure have come from actors inside the organic sector and in general been much stronger than in Norway, this has led to a larger availability of recycled fertiliser products for organic farmers.



After a long day of presentations, the participants were still very engaged in discussing possible consequences of phasing out the use of contentious (?) inputs from organic production in Norway. (Photo: Anne-Kristin Løes)

Engaged discussions in the evening

In the evening, the workshop participants split into three groups, to discuss and respond to four questions reflecting the contents of the presentations given during the day.

- 1.
2. How can Norway increase the impact in working processes on EU
3. level, related to regulations for organic production?
4. How can we increase the use of organic inputs, while reducing the use of contentious inputs (e.g. conventional animal manure, plastic for mulching)?
5. Does the organic regulation hamper or support a development towards organic basic principles (health, ecology, fairness, care)?

6. What is the potential for development of regulations supporting environmental benefits such as non-fossil energy consumption, reduced pollution, climate mitigation, biodiversity?

The responses reflected one or more of these four questions, and hence are compiled in one list:

- Alternatives to peat in growing media may be developed from wood fibre? horse manure? moulded leaves?
- Non-organic seeds should be banned, but seeds produced on fields in conversion should be permitted to use in organic production.
- Changing the practice of conserving feed in round bales could reduce a lot of plastic input, but may increase soil compaction since the load of a moving tractor will be heavier
- Beneficial insects may be very useful, but such inputs demand that the farmers acquire training in the management of such organisms/animals
- The focus, especially in research, should change from use of toxic inputs (e.g. pyrethroids) towards cropping systems and biological control
- For plant protection inputs, a serious challenge for Norwegian growers is that many inputs are not available, not because they are not permitted in organic production, but because no company wants to pay the fee of 25 000 Euro which is demanded by the Norwegian food safety authority to assess the potential use of that product in Norway. Hence, e.g. *Bacillus thuringiensis* is not available for use in Norway, whereas Swedish and Danish organic farmers may use it
- Non-organic straw and manure could be used with certain requirements, e.g. that the cereal field was not treated with certain pesticides, or that the manure is decomposed over a certain period of time
- What do we mean by, and what do we want from, “development”? Is growth of organic (only) good?
- Should science lead the development of organic farming, or should it be driven by practical innovations? E.g., should we accept enzymes changing the digestion and hence reducing emissions of methane from ruminants as feed additives?
- Would it be motivating for organic consumers to see a premium-organic label, with stricter standards? Farmers should then be paid something extra
- Regulations are only one part of the factors governing the development of organic farming; the motivation of the stakeholders involved is a crucial driver
- Several trends in (food) consumption patterns actually support organic farming, such as more grass feed, more soil carbon, less meat and less waste
- We should scrutinize organic regulations to check if something is actually counteracting mitigation of climatic change and carbon sequestration
- Should we develop a regulation demanding e.g. that for each hectare of cultivated land, 0.1 hectare must be set aside as natural land(scape)?
- We need to change our perspective, e.g. towards emphasising a long-term production in dairy cows (many lactations)



(Photo: Anita Land)

Norwegian growers want equal conditions

(*Lenke: https://orgprints.org/36650/7/Thorbjornsen%20Fokhol%20Oct%202029_2019%20challenges.pdf*)

On the second day of the workshop, participants split in two groups, where one half comprised the national board of organic regulations. Here, **Grete Lene Serikstad** (*Lenke: <https://orgprints.org/36650/29/Serikstad%20for%20RVU%20about%20veterinary%20drugs.pdf>*), representing NORSØK in the national board of regulations, presented outputs of the work in Organic-PLUS on alternatives to contentious inputs in animal husbandry.

The other group comprised experienced advisors from NLR and researchers involved in the Organic-PLUS project. Several advisors presented the challenges linked to organic production and to a possible phasing out of some inputs, in different production systems such as fruit and berries, potatoes and vegetables, green house, cereals and fodder crops.

Sigrid Mogan (NLR) (*Lenke:*

https://orgprints.org/36650/9/Mogan%20Fokhol%20Oct%202029_%202019%20fruit%20and%20berries.pdf), advising in organic growing of fruit and berries, was frustrated because the Organic -PLUS project now wants to phase out a

product which Norwegian growers only recently started to use, and which may be extremely useful in very small quantities in certain situations. As an example, she presented a case where a grower of blackcurrant established a new field, which was heavily infected by early leaf fall. Several measures were tried. All leaves were removed from the soil in early spring, with no effect. Treating old leaf residues by gas burning of the soil surface in spring also had no effect, since the fungi survived in the berry stalks, which will sit on the bushes until the next spring if not removed by picking. One dosage of only 500 g of Cu per hectare, applied with exemption in 2011, was very efficient. However, copper must be used with care since it will affect negatively on beneficial organisms. Protected cropping reduces the need for plant protection measures but has a high economic cost. The main message from Sigrid was that Norwegian growers of fruit and berries want equal conditions as their Scandinavian neighbours. As mentioned above, several plant protection products, such as pheromones, NeemAzal, Quassia, Bacillus thuringiensis preparations, granulovirus against codling moth in apple (*Cydia pomonella*) and lime sulphur are not available in Norway because the company does not want to pay the significant fee to NFSA for a Norwegian authorisation when the market is so much restricted. The fee should be reduced, and the period required for assessment should be reduced. Norwegian organic growers have waited for a conclusion from NFSA on *B. thuringiensis* since 2010!

In Netherlands and Denmark, copper is “banned” as a plant protection product (i.e. no product is licensed for use in pest and disease control in both organic and conventional agriculture). Sometimes Cu may be used as fertiliser when public advisory service identifies Cu deficiency in the field. Sulphur (alternative for Cu) is sprayed frequently in orchards against scab, harming insects. On this background, it feels quite provoking to face a project such as Organic-PLUS, talking about phasing out one of the few available plant protection measures which was only very recently introduced.

Phasing out every input?

Kari Bysveen (NLR Innlandet) (Lenke:

https://orgprints.org/36650/8/Bysveen%20Fokhol%20Oct%2029_%202019%20contentious.pdf), advising in growing of potatoes and vegetables added on to Sigrid’s strong arguments and asked for an explanation and discussion about which inputs are contentious, why are they considered contentious, and who has decided that they are? She is afraid that a focus on phasing out inputs such as conventional manure may scare farmers away from converting. It takes a lot of energy from farmers to feel that they are blamed for “everything” they do. She mentioned the example of boron to cabbage, where a very small dosage may be crucial for the yield and quality. Farmers want to be self-sufficient, but how far should we go in that direction? No boron on high pH soil = no cabbage, especially in organic growing where fibre cloth may hamper uptake of calcium. If no mineral potassium fertiliser is used, the potato yield may be extremely low in sandy soil. The distributors of organic products claim the same quality and size as for conventional products, and consumers may not want plastic mulch or insect nets and pesticides- but possibly even more, they do not want larvae in their food! We cannot leave all decisions to the consumers; they need to understand farmers’ conditions. A demand for organically grown breeding material of vegetables and potatoes in Norway will be very hard to achieve. E.g. for potatoes, many varieties are needed and a parallel production of organic seed potatoes of all is not realistic. The largest frustration for an advisor wanting to contribute to a better and more sustainable agriculture is the agricultural policy, which always supports less diversity and more specialisation, hence making farmers more vulnerable. Fokhol, where the workshop took place, is a very nice and diversified farm, but very much against the current policy, and this has a large cost for the people managing this farm. She found it difficult to understand how it can be acceptable in organic farming to purchase pellets of poultry manure from Netherlands instead of using pig manure from a neighbour farm, or a Norwegian poultry manure, just because the Dutch product is easier to spread evenly with a centrifugal spreader. Another example is sanitised digestate from food waste collected from shops, which is not permitted or use in organic since it is not free of animal residual material, whereas blood meal imported from Spain may be used. Kari’s conclusion: Life is a compromise, and organic farming also has to be a compromise.

No growing bags = no organic tomatoes

Astrid Sigaard Andersen (Lenke:

https://orgprints.org/36650/5/Andersen%20Fokhol%20Oct%2029_2019%20greenhouse.pdf) (NLR Viken), advisor for organic greenhouse production, questioned why growing bags are not permitted, while covering the soil with plastic in a greenhouse with real soil is allowed. In Norway, there was 5 hectares of greenhouse area managed organically in 2017. About half is used for herbs/lettuce, tomato and cucumber. Only one grower does not use growing bags. Astrid S. Andersen expects that most of the current growers will stop being organic when the exemption period is over (2031?). She also expected that no new growers will be interested to convert. The participants discussed whether e.g. tomatoes grown with growing bags may be distributed as organic as long as they are not being exported.

Animal manure? Not on my land!

Elin Thorbjørnsen (NLR Trøndelag (Lenke:

https://orgprints.org/36650/7/Thorbjornsen%20Fokhol%20Oct%2029_2019%20challenges.pdf) represented the majority of Norwegian organic farmers, who manage dairy cows in mid-Norway. She described an everyday-situation

being challenging, with pressure on specialisation and larger herds. This implies more leased land, and land owners who may be very reluctant to the use of animal manure on their land hence hampering organic management. Cold springs and low soil temperatures tend to decrease the protein concentration in the leys, especially at the 1st cut. There are very few options of organic concentrates to choose from to compensate. Grain legumes are difficult to grow, and crop rotation becomes a nice word, not a regular practice. Mixed peas and cereals could be an option and would fit well in a complete fodder ratio, but many farms are too small for having a mechanisation for mixing and serving complete fodder. Quotas are being reduced because of reduced milk consumption. Consumers ask for non-homogenised, non-pasteurised and grass-fed milk, but the dairy companies (especially TINE) are reluctant because there were serious problems around 1990 with free fatty acids in dairy cow milk in a period when the proportion of concentrates in the fodder ration was much lower than now.

We need more organic cereals, not less inputs!

Silja Valand (NLR Viken) (Lenke:

https://orgprints.org/36650/6/Valand%20Fokhol%20Oct%2029_%202019%20cereals.pdf) advises organic farmers in growing of cereals and oil seed rape. In this cropping system, the main contentious inputs are conventional fresh manure, dried poultry manure, mineral fertilisers, conventionally grown seeds and some plant protection products such as ferro-phosphate against slugs and some microbiological preparations. From these inputs, the most serious threat to organic production of cereals and oil seeds is a demand for organically produced breeding material, and a potential phasing out of conventional dried poultry manure. Manure from poultry (mainly turkey) treated with coccidiostats (e.g. Narasin) is not permitted for use in organic growing. More digestate could have been applied in organic cereals, but there have been significant challenges such as residues of plastic, chemical compounds used during the process and too high concentrations of heavy metals, especially zinc. Silja mentioned that repeated deregistering and recertification, where people treat the fields with glyphosate in non-organic years, may be an option with the current regulation. If this option is utilised, it will effect negatively on the reputation of organic farming. Banning the use of conventional manure would significantly reduce the production of organic cereals and oil seeds, which is already very low. The low access to organic cereals is restricting a further growth of other organic productions in Norway, and it is not very “organic” to import cereals from far away. Currently, about 70% of carbohydrates and 50% of protein to organic animal husbandry are imported.

(Lenke: https://orgprints.org/36650/6/Valand%20Fokhol%20Oct%2029_%202019%20cereals.pdf)

Comparing Denmark and Norway

After this final presentation from advisors, who are all very motivated by organic principles and would like to see more organic growing in Norway, we discussed why they all interpreted the goal of Organic-PLUS as if all inputs are going to be banned. Frank explained that the EU has an aim to ban inputs which are compromising the appearance of organic farming, and that the trend actually is that more and more products are coming into the Annexes so the trend is not like what the participants understand. He asked for the main bottlenecks: what is actually restricting a growth of organic production in Norway? Is it too few inputs for plant protection, or too little organic cereals? Or is it a lack of interest among consumers? The main answer was that Norwegians in general are much more positive towards local products than organic. Some pointed back to the remarkably high trust in public authorities in this country. The largest dairy company, TINE, also has a very high trust among Norwegian consumers, but for insiders it is annoying that they show the public falsely romantic stories of grazing cows instead of real agricultural life. Frank told about the situation in Denmark, where organic is much more accepted also among conventional farmers and stakeholders. The short story is that organic farmers have more challenges, work harder and earn better, while conventional farmers use some easy shortcuts and earn less. There is a stricter demand for a real crop rotation in Denmark than it seems to be in Norway.

This led to a brief discussion about specialisation; organic growers are highly specialised which makes it challenging to develop the basic organic principles (ecology, health, fairness and care). However, an interesting consequence of specialised production is that currently, even conventional cereals producers show an interest in improving soil fertility and are open for learning from organic colleagues.

Frank also pointed to the fact that the organic label has a value, which could possibly be better utilised in Norway. Organic consumers are informed and critical, and demand something back for the premium price. The rapid growth in organic production in Denmark has only been possible because consumers trust the organic sector. Then there must be some clear differences from conventional farming. Transparency is crucial; all exemptions from regulations are published.

The advisors reasoned that they identify themselves more with farmers than consumers, and hence want to bring forward the opinions from (most) farmers.

Nikos questioned the governmental support, and Gunnar explained that they want the production level to be driven by consumers' demand. It seems that they have no fear that the increasing import of organic products, also products which

could easily have been grown in Norway, may destroy the Norwegian system of protecting national production.

Organic-PLUS should explain what is contentious

Dr. Jon Mjærørum from the central administration of NLR wrapped up the discussion by a positive feedback on the workshop. He advised the researchers active in the Organic-PLUS project to communicate more clearly what inputs may be regarded as contentious, and why. He also stressed people's fear of chemical formulas, e.g. that using CO₂ in a greenhouse is by many considered as something very toxic and negative. Food consumption is getting a lot of attention, but also demands a lot of knowledge if people shall be able to conduct informed choices.

To conclude, the workshop provided very much relevant knowledge about the governance of inputs applied in organic farm management. The use of many contentious inputs such as antibiotics and copper is already quite low in Norway, and experienced advisors expressed a deep concern that the already low number of organic farmers may be even more reduced if pressure is made for reducing the use of these and other inputs, such as conventional animal manure. Norway has not experienced a comparable increase in organic production as other Nordic countries, and the lack of growth in the organic sector may contribute to a situation where changes seem to be regarded as quite negative. For the Organic-PLUS project, it is important to keep in mind the somewhat special Norwegian situation when communicating alternative solutions and arguments for possibly reducing or phasing out contentious inputs to Norwegian stakeholders and actors.