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Editorial

Dear Eursafe Members,

Our contributors for the March 2017 issue are Prof. Alan G. Fahey (Opportunities and Challenges for Big Data Applications in Agriculture and Food Production, Dr. Ian Werkheiser (Livestock Participating in Their Own Welfare: The Risks and Promise of Precision Livestock Farming) and Dr. Samantha Noll (Non-Human Climate Refugees: The Role of Agriculture in Ecological Resilience for a Changing Climate). As you peruse through their insightful and thought-provoking essays, I invite you to consider some of the novel challenges and opportunities facing the future of global food production and the normative issues that coincide with the push to be more efficient and sustainable. "The big data era has arrived," notes Prof. Fahey, and while "There is enormous potential to develop knowledge informed solutions to improve the efficiency and sustainability of agriculture and food production [we must do so] without sacrificing the quality of the product in the food chain." Prof. Fahey provides helpful suggestions for what skillsets will be important

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for future professionals and sustaining our global food system in this new era. In his essay, Dr. Werkheiser echoes some of the promises in the offing vis a vis Precision Livestock Farming (PLF) and the importance of conscientious professionalism as the technology and its attendant systems evolve and catches on. According to him, "[PLF] promises to allow modern, large-scale farms to replicate the benefits of caring farmers who know their animals, but transferred to large-scale farms." He suggests also that, "PLF technologies could [also] increase animals' ability to improve their own welfare by embedding assumptions of a high level of animal autonomy and communicative capacity." Researchers, scientists and engineers may be able to imbue the new technologies with animals' perspectives and animal-based measure. However, due diligence must be given to "the values and assumptions built into the technology in the first place." In her highly innovative discussion, Dr. Noll shines a much-needed spotlight on non-human climate refugees and the role "agriculture could play… in either biodiversity loss or in helping to mitigate climate change impacts to non-human species and surrounding ecosystems." Dr. Noll's contribution is particularly timely as nations and industries across our world determine how best to operationalize and execute the Paris Agreement. She reminds us how we are all interconnected in the biotic community and what is at stake for us and especially for some of the most vulnerable beings on the planet if we fail to listen to evidence-based research and work towards shared solutions in order to forestall biodiversity loss and promote greater resilience in our mixed human-nature communities.

Please check out Prof. Meijboom's update on behalf of the Executive Board as well as events, conferences and symposia that have been highlighted by some of our colleagues for your consideration.

I hope that the essays highlighted here will continue to inspire us all to do good work, and to eat well, always mindful of our humanity.

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Paper

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Opportunities and Challenges for Big Data Applications in Agriculture and Food Production

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The global population is expected to grow from 7.5 billion people in 2017 to approximately 9.7 billion people in 2050 (UN, 2015). This rapid increase in the global population is placing increased pressure on the food chain to meet the increased demand for food production, while also satisfying the demand of reducing the carbon footprint of these activities. This implies that the main challenge for future food production is to become more efficient and sustainable. Past and current scientific breakthroughs in the areas of genetics, nutrition, physiology and general husbandry have contributed to meeting these challenges in animal and plant based agriculture. However, further improvements are required and big data is an area that has the potential to provide all agricultural and food industries with the opportunity to make informed data driven decisions that will contribute to future innovations. The objective of this paper is to outline briefly some of the opportunities and challenges that face agriculture and food industries in using big data applications to create knowledge that can be employed in solving problems or creating opportunities for the industry.

Before we discuss the opportunities and challenges for big data applications in agriculture, it is important we understand what is big data. There are many definitions for big data available in the literature and these definitions are often tailored to the industry which is trying to define it. However, there are two definitions, which when combined explain the general essence of big data. The first definition provided by the McKinsey Global institute (2011) defines big data as "datasets whose size is beyond the ability of typical database tools to capture, store, manage, and analyse" and the second definition of big data by Forbes (2013) states that "Big data is a collection of data from traditional and digital sources inside and outside your company that represents a source for ongoing discovery and analysis". When these definitions are combined it suggests that big data deals with harvesting large volumes of data on a regular basis from a diversity of sources so that it can be analysed on a regular basis and provide the end user with information that can be used to solve problems, develop strategies or improve the efficiency of current work practices. The combination of these definitions provides a context in which big data can be used in the agriculture and food industries as big data will become most useful when we can combine data from the entire food chain, from 'farm to fork', and use this data to create knowledge in approving the efficiency and sustainability without sacrificing the quality of the product in the food chain.

While the term 'big data' is relatively new, the concept of big data is not new to production agriculture. One of the best examples of a big data application has been the routine genetic evaluations of cattle and sheep populations by quantitative geneticists (animal breeders) over the past 60 years. In many countries national organizations have collected animal performance data for different production, fertility and health and welfare traits, pedigree information and more recently genomic data to estimate the genetic value of animals and provide farmers with an easy to interpret metric that is used when choosing which sires should be mated to the female population. An example of the scale of these databases was provided by Cole et al. (2012), who showed that in the United States, the USDA which conducts genetic evaluation for dairy cattle has over 500 million test day records from 24 million animals in the national database. In addition to this, some of these national databases also harvest data from diverse sources such as breed societies, milk processing and recording agencies, livestock sales facilities, veterinary practitioners, meat processors and farmers to improve the accuracy of prediction of the genetic values or breeding values of animals. This animal breeding example provides a template for the opportunities big data applications have for improving efficiencies in other aspects of agriculture and food production. Major advances in precision farm technologies provide us with large amounts of data regarding animal activity, feeding behavior, rumen pH and fertility events. If this type of data was merged into databases containing animal production data and subsequent food quality it would be possible to look at analyzing how animal behavior, health and productivity impact food quality. However, a number of challenges must be overcome before these opportunities can be realized.

Evolution of precision and sensory technologies coupled with increasing computer processing power has provided agriculture and food industries with the ability to collect and store large amounts of data from different sources in the food chain, and which can be utilized in improving the efficiency and sustainability of the these industries. However, one of the main challenges that face us is bringing all these data into a single database and the complexity of dealing with different data formats from the various technologies. Due to proprietary issues software applications often do not work efficiently together, especially when trying to combine data. This requires a high level of computer programming and database skills. Another major challenge with big data applications is to take these large and diverse datasets and convert them to a solution that can be easily interpreted by the end user, often the farmer. Therefore, it is quite clear that big data scientists must have a diverse range of skills not easily found in a single person or company. The Harvard Business Review (2012) highlighted that there was a shortage of people with the necessary skillsets to harness knowledge from the data being collected, and as a result, constraining progress across different sectors. In an effort to determine what skills were required to be a big data scientist, De Mauro et al. (2016) concluded that 'big data scientist' was a loose term that had different meanings to different industries. Depending on the industry, big data scientists are required to have a wide variety of skillsets in the areas of statistics, computer programming, project management and data visualization to name a few. This study then categorized the data scientist traits into four big data job families which were; business analysts, engineers, developers and data scientists. The investigators then analysed each of these job families to determine if there was a common skillset that was required by each of these job families. They found that people working in each job family needed to have knowledge of business impact. In other words no matter which job family that big data scientist works in, all big data scientists are required to have an understanding of the industry in which they are working. Therefore, we may need to look beyond computer science, engineering, and statistical departments to find people with the relevant skills set to be an effective big data scientist for the agriculture and food industries. However, many agriculture and food science programmes do not have sufficient computing and quantitative aspects to their syllabi.

Training future big data scientists is important so that big data technologies can be correctly applied to the agriculture and food industries. Therefore, greater synergies are required between university departments to create degree programmes with learning objectives and outcomes that are consistent with industry requirements. Industry has an important role to play here, because as stakeholders they should be in dialogue with universities to discuss their industry requirements. Hence, the development of big data degrees that syllabi that not only include statistical and computing skills, but also the opportunity for students to learn about the industry in which these skills can be applied are essential. These opportunities can be provided in an academic setting by universities but should be complemented with high quality industry internships.

The big data era has arrived, and is being used effectively by many sectors. There is enormous potential to develop knowledge informed solutions to improve the efficiency and sustainability of agriculture and food production.

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Paper

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Livestock Participating in Their Own Welfare

The Risks and Promise of Precision Livestock Farming

Dr. Ian Werkheiser

A version of this essay is currently under review for publication

As agricultural production scales up, it faces a problem. While larger facilities benefit from economies of scale, farmers lose the ability to closely monitor their farm and make adjustments as needed. Practically, this is a problem because it cuts against farms' sustainability goals. There is also a symbolic cost as the vision of a traditional farmer Wendell Berry might approve of, one who knows their farm like the back of their hand and uses this information to be a good steward, recedes toward impossibility. This is a drastic and likely unwelcome change to a farmer's identity, and also has the possibility of changing the public's perception of farmers and farming, with possible policy implications. The loss of attentive stewardship at scale has the possibility of particularly significant effects in the case of livestock production, as animals move from being individuals known and recognized by farmers toward numbered but ultimately undifferentiated units.

As an answer to this problem, Precision Livestock Farming (PLF) promises to allow modern, large-scale farms to replicate the benefits of caring farmers who know their animals, but transferred to large-scale farms. PLF refers to a suite of technologies, some only speculative. The goal is to use networked 'smart' devices to continuously monitor individual animals on large farms, compare this information to expected norms, and use algorithms to manage those animals (e.g. via changes in climate, feeding, or reproductive decisions) automatically. Practically, these technologies facilitate sustainability goals, such as minimizing environmental impact, minimizing wasted inputs and thereby maximizing economic efficiency, maximizing food safety, and perhaps most importantly maximizing animal welfare. Symbolically, these technologies recreate an artificial version of the semi-mythic image of the good steward caring for their animals. Indeed, the rhetoric around PLF promises to improve on that steward, via closer monitoring than farmers could provide to even a few animals, as well as integration of the data via decision algorithms which improve on the guesswork of traditional stockmen. As one paper in favor of PLF says, "We can not only replace the farmers 'eyes and ears' to each individual animal as in the past, but several other variables (infections, physiological variables, stress, etc.) will soon be measurable in practice" (Berckmans 2004). Another paper says "Traditionally, livestock management decisions have been based almost entirely on the judgement and experience of the stockman who has to estimate or guess the likely effects of any control action, taking into account the complexities of the processes involved. This leads to dilemmas" (Frost et al. 2003, p. 228). After listing the unexpected connections between management decisions a farmer might miss, the paper says "These connections need to be strengthened and formalised through the development of integrated management systems, designed to control simultaneously more than one, and ideally all, interrelated processes involved in livestock production" (ibid., p. 228).

These methods of monitoring and control hold out promise, but they also raise a host of ethical issues. These issues include alienation of laborers and the loss of jobs on farms (for an early discussion of this issue, see Heffernan 1972). This cost would have to be balanced with the possibility of those fewer, more alienated jobs also being less physically demanding, as well as the addition of at least a few technical jobs on farms to install and repair PLF equipment. Another ethical concern raised by

PLF is the further consolidation of farms, as only those concerns with the capital to invest in PLF can benefit from the 'technology treadmill' (see, e.g., Thompson 1988; Nowak 1997; McCune 1998; Röling 2011) of ever-improving PLF technologies. This is a common problem in modern industrial agriculture, and has sometimes been mitigated by using tax subsidies to allow farms with less capital to make improvements, but that solution brings up its own ethical issues. A third possible issue for PLF is the cover it provides for meat consumption as large-scale industrial livestock production is once again given the romantic veneer of close attention to animal welfare. Whether improvements to animal welfare before slaughter (which might further encourage animal consumption) is an unalloyed ethical problem, or benefit, or a mixed tradeoff, of course depends on one's views on the consumption of meat as well as one's opinion on the strategies of abolition or amelioration (for different perspectives on this question, see Cole 2010; Haynes 2012; Thompson 2015).

These concerns are serious, but as is indicated by the dates of some of the citations in the above paragraph, they are fairly standard problems for any technological innovation around large-scale livestock production. There is another ethical concern for PLF which is shared with fewer technologies, and is therefore less examined by people concerned with agricultural ethics. Namely, PLF may harm livestock if it limits the ways in which animals can communicate their preferences, thereby limiting the animals' participation in the farming system. This concern is focused on the relationships farm animals can form with attentive farmers, in which animals can communicate their needs and preferences and farmers can incorporate those needs and preferences into the farm's systems. This is a form of participation and autonomy by the animals in how their lives are structured. The loss of this participation is a harm which is not typically acknowledged independently from the animals' affective welfare. A full defense of this as a harm is beyond the scope of this paper, but if one wishes to reject participation as a good for non-human animals, it is still the case that their communicative participation makes it more likely that their welfare needs are met. Ignoring animal communication in favor of PLF metrics may miss important welfare signals (for a discussion of distorting animal welfare via PLF which does not discuss participation, see Wathes et al. 2008).

The underlying technologies of PLF are engineered with built-in assumptions not only about what information is relevant to animals' wellbeing, but also about what relevant information animals can provide to farmers, and therefore what 'participation' by livestock in farming looks like. Some of these assumptions may get embedded by engineers unfamiliar with livestock management, but it is also quite possible that some of these assumptions are embedded (either intentionally or unintentionally) after close consultation with farmers. It is also quite possible that as PLF develops there will be more incorporation of farmers' needs and values. None of this removes the concern of missing participation. Farmers themselves may well be unaware of some of the signals they receive from the animals in their charge, and so may well misreport what information they use to engineers. It is particularly likely that the scientific context of consulting with engineers about technology development will make it less likely that farmers will be aware of or report aspects of their relationships with animals that seem subjective and emotional (see Jensen 2004 for a discussion of the phenomenon of denying our communication with other animals). All this can potentially lead to innovations which miss avenues for animals to communicate their individual needs and personalities, thereby limiting the ways in which those animals can influence the system to be more in-line with their preferences.

On the other hand, it is possible that PLF technologies could instead increase animals' ability to improve their own welfare by embedding assumptions of a high level of animal autonomy and communicative capacity. Stuart, Schewert, and Gunderson (2013) argue that one form of alternative dairy production employing high technology to replace the judgment of farmers decreases alienation of the cows from their labor. The technology in question is robotic milking facilities, where cows can choose to be milked whenever they wish, and are rewarded with a treat. The authors suggest that this technology allows the cows to have more autonomy and participation in the decisions affecting their lives. This technology is like PLF in some ways, as it replaces the need for human attention and judgment, but it also differs from PLF, as it does not attempt to recreate that attention and judgment. However, it does show the possibility that technological developments like PLF could be an improvement to animals' participation in their lives over modern, industrial farming approaches which treat animals as average group member with averaged needs, and perhaps even over small-scale, traditional farming.

The degree to which PLF can be an improvement in animals' participation and autonomy, or the degree to which it will further silence them, will depend heavily on the values and assumptions built into the technology in the first place. In this way it is like much of the technological developments in the (human) workplace, which can either empower or disempower workers. The literature in that area could be a useful resource for researchers working on PLF, but only if this concern is recognized. To do that, we must overcome our tendency to deny and silence the voices of animals, ignoring the ways in which they could tell us things and take a role in determining their own lives. This is a high hurdle to overcome, but one tool in doing so might lie in that romanticized image of the farmer as attentive steward who knows their animals as individuals. Reinforcing the ways that semi-mythic farmer works with animals, listens to them, and build a farm around the individual idiosyncratic needs of those particular animals (for example, perhaps this could be discussed in a narrative at the beginning of a consultation between farmers and engineers about PLF technology) could make space for farmers to think of and share the many ways their animals let them know what they want and what they do not. PLF is in its early days, particularly in the US, and so there is still much that remains to be seen about its applications. But as with any new kind of technology, those values and assumptions which are not discussed and considered critically will be built in unreflectively, and may well miss something important. When technology is applied at a massive scale as it can be in industrial agriculture, these lacunae can impact millions of lives.

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Non-Human Climate Refugees

The Role of Agriculture in Ecological Resilience for a Changing Climate

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Paper

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Climate change is increasingly impacting agricultural production and methods across the globe. Indeed, scientists, farmers, NGOs, and governments are currently working hard to determine the best ways to address the negative impacts of changing weather patterns on crop yields, and thus impacts to global food security, how to curve agriculture's contribution to greenhouse gas (GHG) emissions, and to determine the best ways to shift agricultural practices to take advantage of the industries' potential as a carbon sink, while not overly impacting yield (Barling 2010). In a context where over one billion people are already going hungry, the current focus on addressing impacts to food security and negating climate change externalities is understandable. However, there is another climate change induced shift that could be 1) exacerbated by current agricultural production methods and 2) at least partially addressed by shifting agricultural practices. This is, specifically, the issue of species migrating due to changes in the climate or what I call the 'problem of non-human climate refugees.' The aim of this essay is to introduce readers to this growing problem and provide a sketch of how farming could help address some of the impacts associated with non-human climate refugees.

With the advent of climate change, climate refugees are increasingly becoming a part of the current global-political landscape. Roughly, 'climate refugees' should be understood as beings (be those human or non-human) who are forced to leave their communities due do the effects of changing climate. While we sometimes think of animals as inhabiting specific ranges or areas, historically, many species responded to climate fluctuations by migrating to new habitats that were better suited to their survival (Angetter et al. 2011, Palmer and Larson 2014). In a sub-set of ecological literature, this is often described in terms of species following their 'climate niches' or 'ecological niches', which can roughly be understood as a determinate of a species' range and, more generally, as the area in which a species can thrive' (Minteer and Collins 2010). Today, a wide-range of species are expected to shift their ranges in response to climate change (Botkin et al. 2007, Bellard et al. 2012). For instance, Tinley et al. (2009) found that out of the 53-bird species they tracked in the Sierra Nevada mountains, 48 species (90.6%) shifted their range to track their specific climate niche. In addition, climate changes are also negatively impacting the annual movements of migrating species, such as Canadian geese, as biotic and abiotic cues are disrupted by climate change, changing resource availability, and altered habitats (Moore 2011). What we are seeing then is the rapid increase of species loss due to migration interruptions, competition from new species entering novel ecosystems, as they follow their climate niches, and species loss due to environmental stress (FAO.org 2016). This, in turn, compromises ecosystems and thus the services they provide, such as nutrient cycles, crop pollination, and water purification.

According to the Food and Agriculture Organization of the United Nations (2016), food and fiber production has only exacerbated this problem, as the human activities of agriculture and intensive forest cultivation (in conjunction with urban development) have created 'barriers (physical, chemical and ecological) [that] will prevent the natural movement of individual animals in the short term and prevent the gradual shift of populations of plants and small territorial animals in the medium term' (FAO.org 2016: p.32). Coupled with (as of ten years ago) roughly 11 percent of the world's land surface (13.4 billion ha) currently under cultivation and combined with approximately 2.7 billion ha of land that could potentially be utilized for production (FAO.org 2003), the probability is high that species may be a) barred by or b) attempt to move though agricultural zones, as their ranges shift. From this perspective, the result is a vicious loop, where biodiversity loss appears to be exacerbated by agricultural production, while climate induced species migration, may, in turn, impact agricultural production. Additionally, species migration may also present novel 'pest' management problems to farmers in the near future.

While agricultural production areas could, as intimated above, play a key role in exacerbating existing pressures on the environment, undermining ecosystem functioning, and acting as barriers to species migration, it is important to remember that agricultural zones could also be used to mitigate these impacts, if they are used to foster ecosystem strength and increase biodiversity levels. For example, according to Macdonald et al. (2015), intensive agriculture coincides with the loss of biodiversity. However, we can balance food production with other factors, such as preserving rich biodiverse landscapes. Farming systems are differentiated by how we value distinct elements or components of the whole, such as the maximization of yield, the mitigation of negative impacts to surrounding wildlife, and a plethora of cultural and aesthetic concerns. Various farming management strategies can be employed to bolster plant and animal communities and to restore habitat, while continuing to use the areas for agricultural production. Macdonald et al.'s (2015) research on conserving wildlife in agricultural areas illustrates how farming zones are not 'only' areas of production and do not necessarily create barriers to species migration. In contrast, they could potentially be used as part of a larger mitigation strategy.

As cityscapes create barriers to climate change induced species migration, as well, urban farming initiatives could also be used to help mitigate impacts. For example, rooftop gardens and urban farming programs, when connected to existing office parks and greenspace, could potentially be used as wildlife corridors or way-stops for animal refugees. While this may seem far-fetched at first glance, this is a natural extension of the current and growing literature on using urban agriculture to mitigate climate change. Indeed, urban agriculture is currently seen as a potentially viable solution for partially alleviating climate change impacts, as these programs could help provide local communities with food and fuel, reduce the urban areas' carbon footprint, and provide novel flood mitigation strategies (Hoekstra 2016).

The purpose of this essay was to bring the issue of non-human climate refugees to the forefront and to outline how agriculture could play a key role in either biodiversity loss or in helping to mitigate climate change impacts to non-human species and surrounding ecosystems. This is an area of research that should be supported, as the effects of climate change are a serious threat to the survival of a wide range of species (Hannah et al. 2007, Barnosky 2009). Indeed, "one influential review predicts that, depending on the rate and magnitude of planetary warming, up to 35% of the world's species could be on the path to climate-driven extinction" (Minteer and Collins 2010, p. 1801; Thomas et al. 2004). A more recent study argued that "if we follow our current, business-as-usual..., climate change threatens one in six species (16%)" (Urban 2015, p. 571). Within this broader spectrum, some taxonomic families will be more greatly impacted than others, with one-third of amphibian species currently facing extinction or dramatic reductions in their populations (Van Dooren (2014). However, it should be noted here that the scale of loss is currently uncertain, but even relatively small percentages of predicted extinctions could translate into substantial losses in biodiversity. These numbers coupled with the estimate that an average of 26.4 million people have been displaced by weather or climate related events since 2008 (IDMC 2015) illustrate how both human and non-human climate refugees will continue to impact agricultural production and consumption for the foreseeable future.

In this vein, balancing the demand for aid, and thus increased production or more efficient distribution, with the need to protect keystone species to ensure ecosystem service functioning may become imperative in the future. Agricultural practices could exacerbate the problem of non-human refugees or could be used as a strategy to help to mitigate impacts, such as using farming zones as corridors for migrating species. In the face of climate change, agricultural production zones may have to shift their role from human-made barriers to areas that could be used as part of a larger mitigation strategy aimed at ensuring ecological resilience. Regardless of the future strategies we adopt, however, problems associated with non-human climate refugees are here to stay, as ecological niches shift into agricultural areas and as farming practices move into the age of the Anthropocene.

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EurSafe Executive Committee Update

It is my pleasure to provide the Executive Committee update for this Spring issue of the EurSafe Newsletter. During the last months the organizers of the EurSafe 2018 conference in Vienna made good progress and are happy to inform us that the conference will be on 13-16 June 2018. The aim is to set a spotlight on the role and responsibility of the professional. Therefore, the title of the conference will be: Professionals in food chains; ethics, roles and responsibilities. A call for papers will follow at the end of this Spring together with the conference website.

This event was also one of the points on the agenda of the Meeting of the Executive Committee on 27 January 2017. This was the first meeting of the board in its new composition and we were happy to welcome Dirk de Hen and Bernice Bovenkerk as treasurer and secretary, respectively. In this meeting we discussed the first steps towards of a strategic planning 2017-2019. The focus is on the added value of the Society for its members and the role of communication. The overall assessment is that the communication is very much focused on the conference. This is important, but we are also a community and want people to feel part of a community. As a result the Executive Committee will explore the possibilities of creating a more active platform for a broad group of people working in the area of agricultural and food ethics. For instance, by providing the opportunity to share papers, abstracts or research projects on a voluntary basis. This may help scholars, and especially young scholars to use the EurSafe network to find relevant collaborations, (preliminary) research output and help them cooperate and look for and offer jobs. We aim to present a more elaborate version of this initiative in one of the next EurSafe News issues. In the meantime, it might be good to know that EurSafe has its own Twitter account: @EurSafe_Ethics.

Best regards,
Franck Meijboom
On behalf of the Executive Board, March 2017

Conferences and symposia

2017

MARCH 22-25

Living with Animals

Kentucky, USA

livingwithanimals.eku.edu

MAY 11-12

Workshop on Animal Agriculture from the Middle East to Asia

Cambridge, USA

JUNE 12-16

Vethics – ethical challenges for veterinarians in One World PhD-course

The course offers a week of ethical challenges, ideas, thoughts and values regarding the role and responsibility of veterinarians, as well as further issues on human-animal interaction in a dynamic world. The course is led by European researchers in animal ethics, animal welfare and animal science. PhD students in ethics, philosophy, history, sociology, economics as well as veterinary medicine and animal science are welcome.

More information at www.slu.se/vethics

Registration before May 15th to Anne.Larsen@slu.se

Course leaders: Helena Röcklinsberg, Swedish University of Agricultural Sciences, helena.rocklinsberg@slu.se and Mickey Gjerris, University of Copenhagen, mgj@ifro.ku.dk Location: Sunnersta Herrgård, Uppsala, Sweden www.sunnerstaherrgard.se

Travels: Train to Uppsala Central, flights to Arlanda airport (north of Stockholm)

JUNE 20

Workshop: Empathy, Animals, Film

Basel, Switzerland

www.empathies2017.com

JUNE 22-25

Human-Animal Interconnection, ISAZ Conference 2017

Davis CA, USA

www.isaz.net/isaz/conferences

JUNE 29-30

Animals and Social Change, Centre for Human Animal Studies 2017 Conference

Liverpool, England

www.edgehill.ac.uk/cfhas/conferences

JULY 1-2

Minding Animals Germany Conference 4

Bielefeld, Germany

www.mindinganimals.de/news.html

JULY 23-26

The Ethics of Fur, Fourth Annual Oxford Animal Ethics Summer School

Oxford, UK

www.oxfordanimalethics.com/what-we-do/summer-school-2017

OCTOBER 2-6

International Summer School - BEYOND THE PRECAUTIONARY PRINCIPLE? Ethical, legal and societal aspects of genome editing in agriculture

Subject: Beyond Precautionary Principle?

Recent advances in Genome Editing for agricultural purposes pose general questions in a new light: How should we regulate new breeding technologies for plants and livestock in a scientific way? What are the legal, societal and ethical backgrounds of the current food labelling practice in different countries, especially in Germany and the United Kingdom? Is food labelling an appropriate strategy to cope with uncertainty in risk discussions? Which alternatives could be suitable to respond to the specific protection needs of people, animals and the environment? Do we have to re-interpret the way the precautionary principle is understood in current risk assessments?

The international summer school will analyse and discuss corresponding scientific, legal and ethical questions not least by comparing the ongoing debates in Germany and the United Kingdom. This comparison is of particular interest since the political discussions, ethical evaluations and the juridical frameworks in the two states can be considered as counterparts. In addition, contrasting the situation in Europe and in the USA will reveal the arguments offered in favour of and against the need for labelling.

The summer school will discuss current debates about the use of Genome Editing in agriculture through an international and multi-disciplinary dialogue. The aim is to develop recommendations for more consistent ethical evaluation and legal framing. For these purposes, the summer school invites young scientists from the fields of molecular biology and agricultural sciences as well as politics, law, sociology and philosophy/ethics.

www.ttn-institut.de/summerschool

NOVEMBER 8-10

Are Animal Studies ‘Good to think?’ (Re)inventing Science, (Re)Thinking the man/animal relationship

Strasbourg, France

2018

JANUARY 17-24

Minding Animals International Conference 4

Mexico City, Mexico

Deadline call for abstracts: July 15, 2017

www.mindinganimals.com

JUNE 13-16

14th EurSafe Conference

Vienna, Austria

www.eursafe.org/congress.html?id=ealigam

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You are kindly invited to send any relevant contributions, conference calls, publication reviews, etc. to the editors.