Institution of Agricultural Engineers

South East Midlands Branch

Notice of Branch AGM to be held
19.00 Monday 08 February 2022
via Zoom

AGENDA

1. Apologies for absence
2. Minutes of the AGM held on 08 February 2021
3. Matters arising
4. Chairman's final report
5. Call for new chairperson and secretary
6. Message from the Institution President
7. AOB
8. Date of next meeting.

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Student Research Presentations Competition (before AGM)

Clement Aardweg - Royal Agricultural University

Silvia Arpano – Cranfield University

Mavuto Banda – Cranfield University

Yolande Booyse - Royal Agricultural University

INSTITUTION OF AGRICULTURAL ENGINEERS
South-East Midlands Branch

Minutes of Annual General Meeting

Monday 08 February 2021
at 7.00 pm by Zoom

1. **Apologies**

There were none.

2. Minutes of the AGM held on 03 February 2020

The minutes of the AGM were accepted as a true record. (proposer:P Miller, seconder:J Rickson)

3. Matters arising
None

4. Chairman's Report 2020/21

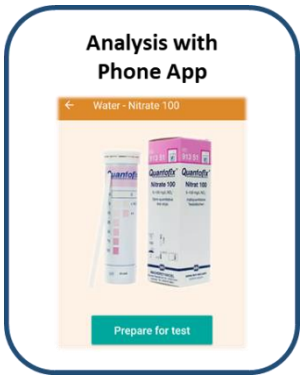
INSTITUTION OF AGRICULTURAL ENGINEERS
South-East Midlands Branch

Chairman's Report, 2020 - 2021

This year started in another life, a life of normality in which our largely unchanging processes of organising and delivering a programme of meetings were sublimely moving on - greeting our speakers for a pub meal before they gave their talks and then joining with others to hear them speak. At the end of the year no-one knows what our new normality will be or when it will come but one thing is for certain, it will never be quite the same with the loss of so many and one in particular who was held in great affection and esteem within our Branch.

But, let us begin at the beginning and celebrate again with those young people who were brave enough to stand up in front of a knowledgeable audience, prepared to be judged for all that they said and did. I write of course about our AGM and the three students who presented their on-going research. Maria Pimenta da Costa Ocampo from Cranfield spoke about phosphorous availability from sewage sludge and its treated derivatives, pyrochar and hydrochar. It was the aim of the industry that 85% of sewage sludge should be applied to land by the year 2020 and that this should be done in a way that ensured discovered environmental protection through pre- treatment. Maria's research to date has treatments little or no negative effects from these products meaning that the thermal enhancing reduced phytotoxicity and provided a slower release of P over time while the growth cycle and grain yield of wheat.

Xavier Albano, working at Rothamsted, reported his research on in-field tools to mitigate nitrogen losses and increase nitrogen use efficiency from organic amendments. He was addressing this problem so that farmers could avoid excessive use of agrochemicals because of the unknown amount of N available from farmyard manure for example. Using both in-field and lysimeter studies he has been able to suggest that the paper-strip method has potential for N measurement but that N sensors need more development to be valuable in the field. Interestingly he was able to suggest that the mineral N threshold for optimum yields is consistently lower when combined with organic amendments.



Raymond Kirk from the University of Lincoln revealed his work on robot mounted vision systems for harvesting soft fruit. Unlike human operators who can spot ripe fruit at a glance, robots need to learn how to find them, including those that might be out of sight and then how to pick them without damage. Just detecting ripe fruit as opposed to semi-ripe was a big challenge and used "convolutional neural networks" and "colour opponency" as part of the process. He then needed an actual robot to do the picking and this involved further complex technologies, including navigation, deep learning and intra-class discrimination.
Despite a technically demanding and intricate piece of work, Raymond was able to present the complexities in a way that the audience could understand and as a result, he was the winner of the evening's competition, receiving an award of £100 to spend as he wished.

The first technical meeting of the season was held on the 9th March and was in fact the last to be delivered other than virtually. David May from the University of Lincoln Institute of Agri-Food Technology/Centre for Agri-Robotics based on the Riseholme campus, spoke about the future of farming in robotic terms, suggesting that they would be transformational and have an impact right from the field to the kitchen in food production terms. They would cross all scale boundaries from very small to large and as we saw from Raymond Kirk's talk, draw on all sorts of other technologies from vision systems to 3-D printing for example. Indeed, recognising this cross-linking of technologies, David reported that Lincoln will be the world's first agri-robotics Centre of Excellence bringing together agri-robotics and autonomous systems to streamline agri-food processes. Together they aim to "fuse" robotics and artificial intelligence with a particular focus on fruit harvesting and pest and disease control.

From this point on in the year, the pandemic put paid to any further physical meetings, but we were fortunate that Marie-Carmen Gavidia from Cranfield University agreed to be a "guinea pig" and give her presentation on "Reducing food loss and waste through postharvest technology" using Zoom. This proved exceptionally successful with the digital technology allowing a wide audience to participate and to ask questions afterwards.
Marie-Carmen's research was targeted at what measures can be taken to preserve food once it has been harvested, concentrating on maintaining quality and safety while reducing chemical use and ensuring that packaging materials maintain freshness while protecting from contaminants. A key area of her research revolves around sensing defects and diseases before they become an issue and this is done by detecting volatile compounds within stores. A decision tool is also being developed that will allow quicker reaction times to avoid widespread deterioration within store. UV-C radiation and ethylene supplementation are also being investigated to determine their most effective use to delay the breaking of dormancy in potatoes and onions. Alongside this, research is using Spectroscopy and hyperspectral imaging to classify wheat seeds.
To start our new season in October, Martin Oldham addressed the topic of seed treatment with an excellent and wide-ranging presentation covering every aspect of the topic. Martin is well qualified to talk on the subject, it having occupied a large part of his career from the days when Baytan, a systemic fungicide was introduced, to today, when he has recently set up Seed Process Consultancy. Seed treatments he said addressed problems such as fungal diseases or viruses that can be carried by the seed and transferred to the new plant, or to deal with plant or root pests. Growth stimulants and micronutrients as well as other biologicals can also be applied, all of which come in the form of liquids, powders or slurries. Seed treatment is a particularly efficient way of protecting plants, using just 1% of active ingredient compared with an overall spray treatment of the growing crop and they have less impact on non-target organisms. Additionally, they are applied in very controlled conditions providing high quality application. Martin's true focus has been on seed treater equipment and he went on to describe the generic processes involved, from cleaners to cylinder, gravity and more recently, colour separators followed by the treater itself. These include rotating drum, auger and batch mixing with various ways of adding measured amounts of product using various different flowmeters. An amazing amount of technology providing sophisticated and highly accurate and efficient treater equipment.
Our November meeting, which was to have involved someone from the AEA, somehow didn't materialise but we were on track again by December and were fortunate to have Lewie Cooper from Shuttleworth College talking to the subject "Futureproofing Fish". Lewie specialises in sustainable fisheries and in addition to his lecturing, has a London-based company Xentel that operates around the world helping to keep the fisheries industry in business. Lewie also takes the lead in his department and is responsible for three mature fisheries and two fish farms at the College. UK Aquaculture he said now supplies more fish than the country's fisheries and is absorbing our ever-growing demand for food; the industry has not seen a dip in growth for the last 40 years. However, 43% of our fish is still imported but we have some of the best brains and research facilities as well as nutritional experts in the UK and therefore great potential to expand home supply. Carp are the most farmed fish in the world and their production supports a large proportion of sport fisheries with around 4 million anglers in the UK who spent £570M on equipment alone in 2017. Koi Herpes Virus

(KHV) is a real threat however and is easily brought in by anglers, so Lewie suggests farmers having stock ponds for rearing. He, along with partners, has also set up an on-line Education and Training facility which is available worldwide at a price that anyone and everyone can afford.

As with Marie-Carmen and Martin, Lewie's presentation is available on-line from the Institution's "Media Centre" and they together with an increasing number of other videos, provide an invaluable source of information.

Our January technical meeting slot was to be filled by James Hunter, who was going to talk to the subject "Practical farming with the advantage of engineering training", a firm "nod" to the value James put on his membership of the Institution. In very sad circumstances, James lost his life in December and we continue to mourn his absence, particularly those of us who had regular contact with him as a member of the Branch organising committee. Your committee are planning a fitting and lasting memorial to James which will be announced in the coming months after appropriate consultations.

Meeting attendances
Our AGM was attended by 24 people and the only other physical meeting, which was in early March was attended by 17. After that everything went on-line and although we don't consistently have the number of people who attended live (one has to capture number of attendees at the time), we can see how many views there have been of any particular presentation. So, Marie-Carmen's has had 47, Martin's has had 74, and Lewie (whose presentation has only just been added) has had 14 views so far.

On behalf of the Branch membership, I would like to extend our thanks to a vibrant committee who have managed to maintain a virtually uninterrupted programme despite unusual circumstances. Our ability to do this has relied heavily on the Secretariat of the Institution and Sarah in particular, to whom we extend our sincere thanks. A programme for the new session starting in October has already been set in outline and it remains to be seen as to how this will be delivered. Last year I signed off saying who knows what the year ahead would hold as far as our changed European status was concerned – one could never have imagined that the word Brexit would hardly be mouthed in the many months that were to follow! I will make no predictions about the year ahead other than that the word "vaccine" might figure highly in it!

W.C.Tim Chamen
28 January 2021

The meeting accepted the report. (proposer:G Spoor, seconder:A Plom)

5. Election of Officers for 2019/2020

Chairman: W C T Chamen
Vice Chairman:
Secretary/Treasurer: J V Stafford
Ordinary Members: A Ansell, R Jones, A Plom, J Rickson, N Tillett, D Tinker, C Watts

The meeting expressed gratitude for all the work that our chairman, Tim Chamen, puts in to running the branch.

6. Message from Institution President– presented by Paul Hemingway.

7. **Any Other Business**
Alan Plom spoke of the planned day event at Wrest Park on NIAE/SRI planned for May 2020. The present pandemic situation made it unlikely to happen as planned but it is hoped to stage it at some point.

9. Date of next Annual General Meeting
08 February 2022

The student presenters were Lotachi Vivian Agbonghae, Okelani Aworabhi, Sophia Bahddou, Joseph Martlew, Lucie Maskova. Unfortunately there was a technical hitch during Lotachi's presentation and she could not complete.

The winner was Sophia Bahddou.

John Stafford

Branch Secretary
08 February 2021