The Institution of Agricultural Engineers

Founded 1938 – Incorporated 1960

Award of Merit

Dr Nick Tillett

MIAgrE

Dr Nick Tillett is an established international expert in matters relating to in-field guidance and the control of systems for plant scale husbandry. He is a director of Tillett and Hague Technology Ltd – a company that he founded in 2005 together with Dr Tony Hague and that has now grown to have a turnover in the order of £4.0 M.

Nick obtained a degree in Mechanical Engineering from University College London in 1979 and a PhD from Bath University in 1998. His early career involved two jobs where he was involved with production engineering and where he gained experience that was to prove to be useful in his later endeavours. He joined Silsoe Research Institute as a research engineer in 1984 where he worked on a range of project including those concerned with robotic milking and the automated harvesting of cauliflowers.

At Silsoe, Nick became involved in work with Dr Tony Hague on plant scale husbandry that was to use computer vision to guide field machinery without using satellite technology.

An experimental vehicle was designed and developed that could operate autonomously. This was demonstrated publicly spot spraying cauliflower plants at Wrest Park in 1996 and established an excellent platform for their subsequent work on the topic. The next stage of development aimed at achieving inter-row weed control by mechanical hoeing in a wide range of crop conditions and the experimental systems developed by Nick and the team were taken up by Garford Farm Machinery and Robydome electronics in 2001 when the first Garford Robocrop hoe was sold.

Following the announcement of the closure of Silsoe Research Institute, Nick formed Tillett and Hague Technology with Tony Hague in 2005 to continue the successful line of research using computer vision to guide field machinery. Their idea of using a synchronised rotating blade in regularly spaced crops to remove weeds between crop plants in the row was developed collaboratively and the first commercial in-row weeding machines were sold in 2008. Collaborative work with The Arable Group that started in 2008 developed prototype spot spraying systems that were developed commercially and successfully demonstrated treating tens of hectares of commercial crops. The market for such systems has yet to develop in the same way as for mechanical weed control systems but remains an active topic for development within the Tillett and Hague company.

Tillett and Hague Technology's principal activity when it started was contract

research, but Nick has had a goal of reducing the company's dependence on external funding. This was achieved initially by licencing their technology and more recently through the sales of complete integrated vision guidance and control systems. Their core product is an inter-row guidance system that aligns an implement or vehicle with crop rows often for the purpose of mechanical weeding. A modular approach gives flexibility to suit a wide range of machine/implement configurations. Company growth has been rapid, particularly in the past five years, with sales having risen from 100 systems/year in 2016 to 700/year in the 2021 season. Most of the growth has come from their European customers although these customers are now exporting machines incorporating Tillett and Hague Technology systems to other countries including North America. This rapid growth has necessitated the development of a network of mostly local subcontractors who manufacture parts to a defined company design and do some assembly. Final assembly, testing and the manufacture of specials has been retained in house and a total of seven additional staff members have been recruited to work within the company based on the Wrest Park site.

As the company has grown so Nick's role within it has changed with an increased managerial component. However, he continues to be heavily involved with product development and customer support/education including the creation of training materials in a wide range of formats.

Dr Nick Tillett has been a member of The Institution of Agricultural Engineers since 2011, is a member of The Institute of Mechanical Engineers and is a member of The Royal Agricultural Society of England.

He has received several awards for his work including the Engineering Applied to Agriculture award from The Institution of Mechanical Engineers in 2000, the Engineering Council Environment award in 2001, the RASE technology award in 2005 and the IAgrE Contribution to the land-based sector award in 2016. He is an active member of the South East Midlands branch of The Institution and participates in many local events.

Outside of his professional life, Nick is a keen glider pilot with his own glider. He is a member of The London Gliding Club that operates at the edge of the Dunstable downs, where he participates in both club and national events.

In summary, Dr Nick Tillett is an outstanding agricultural engineer whose work on computer vision guidance has provided the foundations for both very considerable technological and commercial success. He fully justifies the Award of Merit from The Institution of Agricultural Engineers.

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