Obituary published Monday 21 July 2025 in The Times

Professor John Matthews obituary: engineer who made tractors safer

Agricultural engineer who made farm equipment more efficient and more comfortable to ride and predicted the rise of robotic milking, dies aged 95

Matthews gave a prescient lecture on the technology-powered future of farming in 198

All was not rosy down on the country's farms. Despite the idyllic image of cows grazing contentedly in the fields, crops waving in the wind and chickens clucking merrily across the farmyard, John Matthews observed that the reality was much different. Far from ambling along with ruddy cheeks and a cheerful whistle, plough boys were reaching for earplugs, labourers were quitting because of back trouble and tractor drivers were reporting stomach ulcers.

"I have been deaf for two hours after working with a grain dryer for only 20 minutes," he told the Daily Mirror in 1966. "In almost every other industry the machine is tailored to fit the man, often at great expense in research. But the

tractor man is buffered by an unsprung axle, exposed to heat, cold and wet, a few feet back from the exhaust. He strains his back looking behind at his implements, deafened by the engine."

Matthews spent 30 years at the National Institute of Agricultural Engineering (NIAE) in Silsoe, Bedfordshire, undertaking research into noise, vibration, postural safety and the mental stress of agricultural workers. He developed computerised systems for data analysis in tractor testing and was among the first to apply ergonomics to farm vehicle design. He also demonstrated how fuel economy on agricultural equipment, which uses half the fuel on farms, was often sacrificed to poor maintenance.

As his career progressed he was appointed head of the tractor and ergonomics department at the NIAE, later leading the tractor and cultivation division and eventually becoming director with a staff of more than 400. He oversaw research into automation and robotic technologies, including gradient-controlled drain-layers and self-steering orchard vehicles. Meanwhile, his work with tractor manufacturers such as John Deere contributed to a significant leap in power and efficiency in farm vehicles, while his work on cab design and ride vibration helped to transform safety standards across the sector.

John Deere was one of a number of tractor manufacturers to benefit from Matthews's innovations

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Matthews was also interested in the future of farming. Speaking to the British Association for the Advancement of Science in York in 1981 he painted a prescient picture of how the industry might look in 2030, forecasting that the entire national dairy herd would be registered and identified by implanted devices; computer-controlled milking machines would recognise each cow's individual udder; and their feed would be automatically adjusted to maximise yields. Likewise, beef cattle breeders would use a computer to organise feeding efficiently, bringing animals to their target weight at the right time to be served on the nation's dining-room tables.

He suggested that on arable farms crops would be sown and harvested by remote-controlled machines operated from an office, while drones would monitor progress. Irrigation would be automated to match the prevailing weather conditions. Even the absence of heavy compacting tractor wheels could improve yields by up to 15 per cent, while noisy, smelly and polluting machines would become obsolete.
Fruit and vegetable growers were not exempt from what at the time seemed like a futuristic vision. Bruised fruit would be detected by thermography, while microprocessors would detect shape and size differences in the crop, rendering packaging and processing more efficient.

Even the humble sheepdog faced unemployment, with robots rounding up the flock. However, Matthews did offer one caveat in his well-publicised lecture, entitled *The Mechanical Farm of 2030*. "A radio-controlled robot dog might stand a good chance in sheepdog trials," he said, "but I am not convinced even by 2030 he would necessarily win every time."

Matthews, left, meeting Queen Elizabeth and the Duke of Edinburgh at the Smithfield Show in 1986

John Matthews was born in 1930 in Steeple Claydon, Buckinghamshire, where his father, also John but known as Fred, ran the village bakery; his mother, Catherine (née Terry), had been a teacher before her marriage. He is survived by his younger sister Jose, whose farmer husband provided opportunities to see his ideas in practice.

By age nine he was driving tractors on a neighbouring farm and, although he had intended to go from the Royal Latin School, Buckingham, to study agriculture, during National Service as a radar specialist in the RAF an interest emerged in physics that led him to a career in engineering. While working at GEC he completed his physics degree through evening study at Acton Technical College and in 1959 joined the NIAE, which later became the Agricultural and Food Research Council.

His first two marriages, to Hazel Eldridge in 1955 and to Edna Luckhurst in 1982, were dissolved. He is survived by his third wife, June Robinson, whom he married in 2000, and by the two daughters of his first marriage, Jane, who is a writer, and Shirley, a nurse. Jane recalled their father as a born organiser who led the way in charades at Christmas.

Matthews accurately predicted the rise of computer-controlled milking machines

ADRIAN SHERRATT FOR THE TIMES

Work often took Matthews overseas, both to lecture on British developments and to observe farming practices in other countries, though he felt squeamish about being served raw chicken in India. These visits were not without mishap and he recalled with amusement being booked by a travel agent into a German sanatorium rather than a hotel and travelling on a Dover ferry that returned to the quayside believing that the three NIAE staff who had missed the boat were senior government ministers.

He retired in July 1990 but continued in public service, chairing the governing body of Luton College of Higher Education during its transition to university status

in 1993 and becoming the first pro-chancellor of the University of Luton (now the University of Bedfordshire). He was also vice-chairman of the Ceredigion and Mid Wales NHS Trust, having chosen to spend the final three decades of his life in Aberporth, west Wales, where latterly he took up bowls as his parents had done before him.

Much of what Matthews foresaw in farming has come to pass, making the industry safer and healthier, if perhaps a little less bucolic. “I can look back on playing a major role in developing faster, safer and more efficient tractors, in launching robotic milking and in defining the concept of ‘precision agriculture’,” he told the Institution of Agricultural Engineers, of which he was president from 1986 to 1988.

Professor John Matthews CBE, agricultural engineer, was born on July 4, 1930. He died on July 11, 2025, aged 95