

Further report from the 175th annual meeting

A mobile phone capable of detecting plant diseases could be the next in-field tool for farmers and growers, said a leading Norfolk scientist.

Speaking at the 175th annual meeting of Stalham Farmers' Club on Wednesday, February 8, Dr Matt Clark, of the Earlham Institute on Norwich Research Park, spoke of the rapid progress already being achieved to identify and detect diseases.

Since 2009, when the institute was originally established as the TGAC (The Genome Analysis Centre), the cost and speed of processing biological samples has fallen dramatically. As new devices and massive computing power has become available, it opens up exciting possibilities for the future, which could benefit human medicine, food industries and farmers, said Dr Clark.

While it cost hundreds of millions of pounds to chart the human genome just years ago, now it was about 100,000-fold cheaper to map the make-up of crop varieties like barley.

And the efforts to develop new sensors by detecting the “smell” of crop diseases in the field could help farmers, he said.

Dr Clark, head of technology development, said that techniques developed at the Earlham Institute and with other scientists on the Norwich Research Park and the Norfolk & Norwich University Hospital had helped the survival of premature babies. Instead of taking days to test samples, now it was possible to identify problem bacteria within five or six hours.

In a 45-minute presentation on “sensing crop diseases in the field” at the Norfolk Mead Hotel, Coltishall, Dr Clark told more than 30 members that this approach could be adapted to a special sensor, capable of being fitted to a mobile phone. So instead of relying on visual checks for signs of crop disease, a farmer could be alerted much more speedily by a mobile phone. In a small-scale trial, last summer at Colney, his team had identified a wheat disease by its smell – well before signs were visible on the plant.

A leading potato grower, Thomas Love, who ends his two-year term later this month as Norfolk NFU county chairman, asked whether it might be possible to adapt this technique to detect possible signs of disease in seed potatoes. At present, individual samples had to be taken and then analysed at considerable cost, often costing about £200, he said.

Dr Clark said that these evolving techniques would make it possible to identify particular crop diseases – and developing a hand-held sensor, possibly fitted to a mobile phone, could be a possible solution.

Since 2009 about £15m has been invested in this world-class institute, which changed its name to the Earlham Institute in June last year.

He was thanked by Nigel Cooke, of Oby, and presented with a silk tie with the club's distinctive Stalham hoe and the date of its foundation in 1841.