IAgrM National Farm Walk 2018 Report

On Wednesday 24th of October members attended the Annual National Farm Walk at the Harper Adams University farm. Martin Wilkinson, Senior Lecturer in Finance and Farm Economics and the current Institute Chairman and Scott Kirby, the farm manager led a visit to the farm and research facilities on the campus. Presentations were made at the Dairy Unit, the Beef Unit, the Horticultural Plant Breeding Department, the Cereals Breeding Unit, the Agri-EPI Dairy Centre, the Entomology Unit and the Precision Engineering Unit. The group heard about a significant number of inspirational projects that are in progress at the University and also about the results of a number of projects. Highlights of the day included –

At the Dairy Unit the group saw facilities for conducting individual feeding trials and Liam Sinclair, Professor of Animal Science told us about the results of a trail that has been completed on Functional Fibre in the diet. Using the Penn State Forage Separator the research team had identified that 58% of farms do not mix rations effectively and on 66% of farms cows are sorting the diet leading to varying rumen pH throughout the day. The research also identified that grass silage chop length was invariably not consistent with that expected from the forage harvester settings and that contrary to popular opinion very short chop silage did not result in a low rumen pH.

Dr Jim Monaghan, the Director of the Fresh Produce Research Centre, described the work the University is doing on Brassica and Lettuce phenotyping. The research is focussed on identifying genes that will assist plants to cope with abiotic stress. Wild relatives are being used to identify genes that will limit the knock-back that plants experience when they are stressed by drought, waterlogging, temperature and salinity. The project has identified lettuce strains that are capable of withstanding 6 days of waterlogging and that brassicas are far more fragile than lettuce plants.

At the Beef Unit Simon Marsh, Principal Lecturer and Beef Cattle Specialist told the group about a trial that was started last year to identify an extensive post Brexit business models that would deliver profits in the absence of any subsidy. Hereford X Holstein and Holstein bull calves were put into the trial. Last summer they were grazed and over winter the animals were put onto fodder beet on silty loam soil. Beet yields were spectacular – 27 to 29t of dry matter per ha. A straw pad was provided for the stock and 20% of the diet came from round bale silage. The team were delighted with progress until the 'Beast from the East' arrived when the animals huddled 'like Emperor Penguins in the Antarctic'. Growth rates dropped from 0.6kg/day down to 0.35kg/day. However the trial then enjoyed compensatory grow during the spring and early summer grazing season as animals put on 2kgs/day. Then the drought arrived! Animals were fed some concentrations in the last six weeks to finish them and the team have been pleasantly surprised with the quality of the carcasses. The team are encouraged that they have made real progress in identifying a profitable post Brexit beef business model.

At the new Agri-EPI Dairy Centre Mark Rutter, Professor of Applied Animal Behaviour, enthused the group with his research work on new digital technologies. His team are using neck collars and ankle straps to identify oestrus, lameness, feeding disorders and Johnes disease in individual cows. The technology uses accelerators to measure the animal's movements and each of the above issues leaves its own particular 'movement signature'. Mark explained that the technology is more accurate than the stockman and offers a return on capital of between six and twelve months. The team are about to start research on the use of a 3D camera to measure body condition score and on the use of chemical signals in the milk to identify mastitis and ketosis.

The final visit of the day was to the 'Hands Free Hectare'. Kit Franklin of Engineering department explained that over the last two years a one hectare plot has been farmed exclusively with robotic machines and drones. No one has been in the field. The project has combined tractor and drone technologies to produce small light weight robots that have farmed the land from a laptop computer. The 'Hands Free Hectare' is a world first and has received significant press coverage. It has shown farmers that a robotic future is a practical reality and a discussion developed around the future use of lightweight machines to replace the current giants that farm our landscapes. The next challenge for the team is to take the technology from the one hectare plot into a farmed environment with slopes and misshapen fields.

The farm walk offered all those who attended a glimpse into the future with a variety of projects already delivering results and a host of other projects that will offer further insights into new ways of doing things in due course. The future looks exciting!

David Gardner, Fellow of the Institute