

# **OUTSTANDING TEACHING, LEARNING AND ASSESSMENT TECHNICAL SKILLS NATIONAL PROGRAMME**

**Case study by Reaseheath College  
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Managed by

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## REVOLUTIONISING CURRICULUM TO MEET FUTURE EMPLOYER NEEDS

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# DEVELOPING OTLA FOR AGRICULTURAL SECTOR

## Overview of Project

This project was devised by Reaseheath College as a response to a series of challenges facing both the education and the agriculture sector.

Recent fluctuations in the liquid milk market has seen more than 1000 dairy farms coming out of production between 2013-2016 (AHBD 2017). Despite this, the number of dairy cows in the UK has not decreased, reflecting an acceleration in the natural restructuring of the sector, with an increase in larger commercial operations. Average herd sizes are increasing and new management models emerging.

With BREXIT, the polarisation of the sector is likely to continue. With the threat of reduced subsidies and challenging trading conditions due to fluctuating exchange rates and cheap imports, AHDB Horizon predicts a possible 50% fall in average farm business income (significantly higher in certain sectors). Consequently, there is increasing pressure to drive efficiencies for UK Dairy to remain competitive within a global market place.

Through consultation with key employers across the primary production sectors, it is evident that the industry leaders are already using data and LEAN management tools to assess the efficiency of their businesses and identify value creation in current and future markets. The consultation highlighted a gap between the skills and competencies developed within existing teaching and learning and those required and being used in industry to future proof the sector.

To address this, the Reaseheath agriculture department and college farm staff supported by the employer group, embarked on a journey to embed LEAN management principles and skills throughout the curriculum content, delivery and student experience. The scale and the scope of the project was extremely ambitious particularly within the project timescales. With employers on-board, success was dependant on significant time commitment by the curriculum, farm staff and project support team combined with support from the senior Executive project champion.

The Governments Skills Plan recognises the need to reform the skills system in order to secure our future prosperity. The transformation of technical education to provide high quality learning experiences for those students who are not in academic education is a significant challenge.



Our mission is to deliver outstanding teaching and learning, and to ensure we equip our students with the skills that industry value and require.

This takes dedication, commitment and focus. It cannot be done in isolation. We can only achieve this by working closely with our employers, and understanding not just the educational landscape but that of industry.

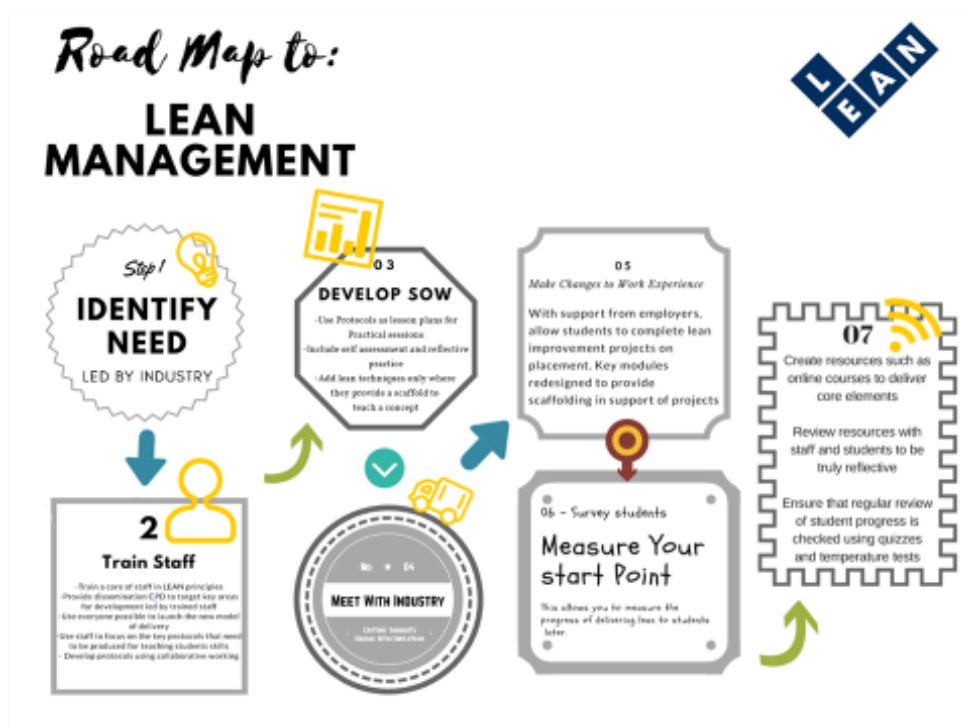
**DAVE KYNASTON**  
**VICE PRINCIPAL,**  
**REASEHEATH COLLEGE AND**  
**PROJECT CHAMPION**

The Reaseheath led Dairy LEAN management project addresses issues identified in the Skills plan and helps with the preparation for T Levels by;

- Engaging with employers in the development of a revised curriculum, which places vocational technical learning at the centre
- Enhancing employer engagement to a higher level through the creation of a virtuous circle of continuous improvement and knowledge sharing, between staff, employers and students
- Significantly increase in the practical element of learning
- Supporting students and employers to understand the value chain and apply it in their work and learning, maximising efficiency and eliminating waste
- The use of live data and increased employer involvement has meant that learning has become more imaginative, aspirational and fulfilling for students
- The new curriculum which is designed to prepare students for the future of the industry and a range of employment opportunities, which may include, but are not restricted to, traditional agricultural businesses. In particular the opportunities being created through the technical revolution as laid out in the Governments Agri-tech Strategy
- The project focus on close working between the college based provision, on farm and employer based work experience so that employers and the college staff integrate closely to the benefit of both parties

The project is part of our preparation for the implementation of T-levels in the following area of Agriculture, Environmental and Animal care.

## Schematic of the OTLA Project



## Partners of Reaseheath College

The scope and pioneering nature of the project, meant that one of the biggest challenges for the project was to find UK college partners able to engage and shape the project in the early stages of development. Consequently, we turned to Finland, Denmark and Sweden where LEAN management is more fully integrated into their Dairy sectors, and where skills and training programmes have been developed.

Links with University leads, University of Exeter, Professor M Lobley resulted in the publication of an article on LEAN management and its applicability to the dairy sector in the International Journal of Agricultural Management. This has promoted peer review and critical debate.

## Project Reach

Category	Number
Educational organisations	7
Manager/Practitioners	21
Staff disseminated to	263
Students impacted on by Project	1612
Employed involved in Project	49

## Aims of the Project

Developing and delivering a significant CPD programme for educational staff was critical for the delivery of the project. This enabled the delivery of the project aims.

Namely to;

- Integrate farm and curriculum activity with curriculum staff attending the weekly farm LEAN meetings, where KPI performance and management actions are discussed thus furthering the value of the farm as an outstanding educational resource
- Develop protocols (standard operating procedures) for each process on farm to deliver production efficiencies and high quality consistent key learning points for all practical and stock duties on farm
- Make available real time farm performance data relating to inform curriculum delivery, engaging students as they move from learning from modelled scenarios to real live situations they are involved with
- Create key data recording and performance monitoring points 'on farm' for use as a learning resource
- Embed LEAN principles throughout curriculum with a target of 20 hours of new bespoke delivery
- Deliver knowledge transfer through on farm Dairy LEAN seminar sharing project results, dissemination of project activity through website and the College's externally funded projects team (Reaseheath Agricultural Development Academy) e- newsletter which is distributed to 2000 farmers
- Share with the industry driven 'Reaseheath Project Eden' partners. Project Eden provides degree level qualified staff to dairy groups including Arla, Muller Wisemans, Dairy UK
- Create new problem based industry projects delivered by students during work placements or in their sandwich years, developing and implementing one LEAN protocol on farm and measuring the impact

## Project Methodology

At the commencement of the Project, all senior management, curriculum and farm staff attended an induction to the OTLA project.

This covered;

- The OTLA Project Programme and the ETF Professional Standards Framework
- The rationale for the Project
- The aims of the Project
- The intended outputs and outcomes

- The roles of the participants i.e. the curriculum/farm team, senior management, quality, employers and our peer advisor
- The significance of the T- Level to their future curriculum development

A project launch meeting was held in May, attended by our Peer Advisor to fully engage all staff with shaping the detail of the project plan, and to explore what outstanding teaching and learning could look like from the student perspective.

Following the changes made to curriculum, the team met with the employer group to review amendments and to discuss in detail the proposed 'LEAN' placement programme. An unexpected outcome of these discussions was the development of a CPD programme for employers taking on LEAN students and the subsequent development of a new employer handbook.

A further 2 days CPD was held before the beginning of the new academic year with farm and curriculum staff to review and finalise new material, and upskill new staff members.

LEAN was embedded into induction week, and the plan was to start the academic year with the new curriculum and associated resources.

## Project Outputs

- The production and delivery of a dynamic CPD programme for LEAN Management, including peer coaching and practical embedding of learnt principles and tools into curriculum development and delivery
- The production of 80 farm protocols to underpin curriculum delivery and improve the quality and consistency of teaching and learning
- 228.5 hours of new curriculum delivery per week
- A new LEAN student placement programme
- 4 new LEAN modules written by the core team (84 GLH). As part of our online learning resources a LEAN Massive Online Open Course (MOOC) was written specifically for the project so that students have a dedicated course to make sense of the features of lessons. This has since been rolled out to 3 departments, animal management, food technology and agriculture. The MOOC is also available as a staff CPD resource across the college and the whole sector
- Development of new live online learning resources  
[Access VBLOG here](#)
- Delivery of a dissemination event to other colleges to share project findings, impact and lessons learnt
- Presentation of the project to employers as part of an Innovation and Knowledge Transfer event

- Development of new CPD for employers to upskill them in LEAN as part of the new placement pilot

## Project Outcomes

- A culture change within the department, whereby LEAN is naturally integrated within curriculum delivery and the mindset of practitioners
- New employers that the college had not previously worked with have come on board through the LEAN pilot placement scheme
- A core group of skilled LEAN practitioners, leading change, delivering CPD and mentoring staff
- All agriculture staff and farm staff have been upskilled and involved in establishing what outstanding teaching and learning may look like from a student perspective
- Greater understanding of the EFT professional standards, resulting in more reflective practice
- 600 staff attending the AoC project CPD session within the biannual staff development day, of which 280 were curriculum practitioners
- Governors and senior management fully engaged with the project and looking to roll out across the college
- Enthusiasm across the agricultural team, with greater levels of collaboration between the farm and curriculum staff
- Curriculum staff going out into industry to engage with and experience LEAN in industry
- Increase of student uptake of the business module since the integration of LEAN by 250%
- Feedback from learners and farm staff (discussed and recorded during the weekly farm LEAN meeting) evidence that the introduction of protocols and standardized job sheets on farm has had a positive impact on the learning outcomes and behaviour of young people with a wide disability range, including those with learning difficulties associated with autism
- The enhanced practical applied element of the curriculum is increasing engagement with students who face barriers to more academic learning. Additionally the data and protocols are helping get over the barriers to maths and English.
- Beginning of a college wide LEAN culture change, both within curriculum and the college as a workplace
- New way of integrating commercial enterprises as an outstanding resource within curriculum delivery
- Development of core skilled LEAN coaches to influence wider change across college



- New website and prospectus content has been amended to reflect the new teaching and learning as a result of the project. Additionally the marketing and schools liaison team have completed CPD delivered by the core LEAN team, to enable them to effectively communicate to schools and pupils what LEAN means and its potential impact on the sector. It has also acted as an effective lead into discussions around agri-tech and the need for maths, IT and STEM skills to access new career pathways in the sector

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It has been exciting to watch the level of commitment and enthusiasm from the curriculum department as they have fully engaged and run with the AOC project. Feedback from employers and students has been excellent, practitioners are buzzing and we are beginning to see a ripple effect across the college

**SARAH HOUGHTON**  
ASSISTANT PRINCIPAL



### Project Impact - Employers

Employer engagement has been positively impacted by the project. They can now see the value can of their contribution, and there is now ongoing dialogue between employers, staff and students throughout the year.

New cross sector employer networks developed – sharing best practice and solutions has added a new dimension to the value the college offers to its employer partners

- The potential to take a LEAN student and to shape an improvement project that will positively impact their business
- Are confident that there is a potential pool of employees they can engage with an access to support their business growth
- Have identified new ways of making their facilities and technology accessible as a teaching resource
- Can upskill through the new LEAN data management CPD programme

“

'We are already using some elements of LEAN, but know we need to embed across our business, having a LEAN student is giving us the impetus to do this'

**ANDREW HIGGINS**  
DAIRY FARMER



### Project Impact - Providers

- Staff and managers have acquired additional specific skills and knowledge to share with colleagues and learners

Intensive CPD has resulted in enthused and motivated teaching team who have adopted the principles of LEAN management and applied it to their teaching. The project has transformed the culture of the department. Practitioners have started to think about how to LEAN the department and teaching process –how and when they plan, processes, meetings to identify areas where they can maximise value and eliminate waste

- The team is much more supportive of each other and willing to reflect on and openly debate approaches to teaching and learning and their effectiveness
- Pride in the project and what they have achieved to date has resulted in an increased ambition for the students, with staff challenging each other to maintain high standards and working collaboratively as part of a continuous improvement process
- All practitioners are using process mapping within their lessons and are seeing a positive impact on student engagement and learning
- More integration of farm and curriculum teams has resulted in a more effective use of the farm as a curriculum resource. Curriculum staff have an increased knowledge of current farm performance, giving them more confidence when teaching on the unit
- Open and detailed discussions between curriculum and farm staff around best practice and trialling of new approaches has acted as an effective informal CPD mechanism for both teams, further enhancing the quality of teaching and learning
- Enhanced quality and consistency of curriculum delivery between practitioners and farm staff through use of protocols within practical sessions and stock duties
- New employers engaging with the department, offering enhanced industry visits, student and staff mentoring



'Using process maps makes delivering the lesson, everything drops out of them and the students find them really easy to follow and understand'

**A BROWN**  
**HEAD OF AGRICULTURE**



'I am using process maps in all my delivery, the students are really used to them no and are completing the logical thought process almost automatically'

**M HENDERSON**  
**LECTURER**



'engaging the students in data collection on farm as a basis of project work and discussions around farm performance using the KPI's has been very powerful. The farm is now a much more effective learning resource as we know what is going on and why'

**HELEN MACHIN**  
**LECTURER**

## Project Impacts - Learners

Feedback from students confirm that they are confident that they are being equipped with the skills that can see in operation at the cutting edge of the sector, making them highly employable. They are developing a better understanding of the value of standardised procedures and can see a clear link with and value their practical's and stock duties as they can see how they are contributing to improved farm performance. Weekly student stock feedback shows high levels of satisfaction and engagement. Other impacts include;

- Increased confidence in the learners when attending industry meetings and discussion groups. Voluntary attendance at these additional knowledge transfer meetings hosted at the college such as the AHDB pig discussion group has increased by 400%
- Access to a wider employer base because of the additional employers that have been involved in this project, including some of the most progressive industry leaders
- The opportunity to access more advanced equipment than previously through investment in new resources and equipment to support project delivery
- Being embedded in a LEAN culture throughout their time at college, students are positively impacting the sector either on their home farms or through their placements
- Higher use of data within learning. However data is not seen as numbers or 'maths' but KPI's and are understood within the wider context of the value chain. This has overcome a significant barrier in students engagement with maths
- Have an enhanced placement with the new LEAN improvement project. Early engagement with the employer from week 12 in year 1, as well as the joint development of the improvement project has increased employer contact and student mentoring

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“Attending the pig meeting has given me a greater understanding of how important data is and seeing the presentation of the unit KPI's can identify why insemination costs are a major challenge facing the college pig unit”

**ROBBIE NILSON**  
**LEVEL 3 EXTENDED DIPLOMA**

“

“It was good seeing the pig unit data and you could clearly see where the problems are. I enjoyed the fact that as students we had the chance to discuss with the farmers and the college staff attending the meeting about ways to improve things.”

**WILL LOWE**  
**LEVEL 3 STUDENT**

“

‘The protocols have helped give us a sense of satisfaction when we know we have completed the job just right. It's great we can talk to the farm staff if we think there is an improvement that we have noticed, and they listen.’

**M ALLAN**  
**LEVEL 2**

“

‘Sitting in the LEAN meetings has helped us understand what is going on, on the farm and why the data is what it is. This has really helped with the completion of our practical assignments. It was all a bit over my head at the beginning but it is making sense now.’

**D WATTS**  
**LEVEL 3 EXTENDED DIPLOMA**

Teaching and learning has been transformed as a result of redesigned curriculum based around LEAN principles. This has enabled students to apply their learning and develop as independent learners and are benefitting from close links with employers through applied employer projects.

Student feedback shows high satisfaction and engagement. Feedback from employers indicates that the revised curriculum has equipped students with a strong understanding of value creation and placed them at the cutting edge of the industry

“

'We were given the farm milk contract to look at to work out the optimum yield from the cows in terms of butter fat and volume to maximise the milk cheque. Increasing the yield from 51,000li to 53,000li per week but dropping the butterfat added £3000 per month. We then worked with the feed consultant to look at ration mixes and nutrition needed to hit the new KPI's. It cost a bit more in feed but it still increased net margin by 31500 per month. Its great working on a real problem and seeing how we can add value. We now pop into the LEAN office on the farm every week to see how the cows are performing against the new targets. I didn't realise the time lag between changing the feed and the amount of milk that goes into the tank before.'

**A WEAVER, LEVEL 3 EXTENDED DIPLOMA**

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Every lesson the staff are making us calculate something, whether it's working out the most efficient way to plough a field, and what that means in terms of fuel costs...

**T JEFFERIES LEVEL 2**

“

'Having the hand held Electronic Identification Device on the sheep unit has given me the opportunity to practically show the students how the on farm technology they will be using in industry works. It has provided the all important link between the theoretical use of technology in the classroom to practical delivery as it will be in the work place. The students can now actively input data, and design improvement plans for their flock, and then extract data and use it to plan the improvement targets needed. It was clear at an industry event held by AHDB yesterday that the students understanding of EID and data discussed was far greater than in previous years'

**J BICKERTON, INSTRUCTOR**

“

'I marked one of the best stock workbooks that I have seen in the last 5 years. The amount of detail showed the student could relate what she had done on farm and how it impacted the farm business. The quality of project work has improved considerably since the students attend the farm LEAN KPI meeting. They now see numbers as performance indicators and interesting, and are referring to them much more in their work.'

**J CLEGG, INSTRUCTOR**

A significant CPD programme has been developed to enable the project delivery. Critical to the success of the project was the training of a core group of staff in LEAN Management. The fundamental principal underpinning LEAN management is one of continuous improvement, which requires a culture change. A LEAN team is required to be a core around which these changes can happen.

Specifically to;

- know their topic well and keep pushing the message
- demonstrate the LEAN tools to the whole of the team
- mentor and coach other staff members to build capacity

The CPD programme consisted of;

- All staff undergoing a 2 day introduction to LEAN
- 5 core staff completing a further 5 days intensive training as part of the ILM qualification
- A further 2 days for both curriculum and farm staff, led by the LEAN core team

In addition to the creation of new curriculum, an output of the CPD was that the team;

- assessed all proposed changes to the curriculum against the principles of t-levels and the Skills plan
- reviewed and amended how we teach –what is excellence from a student perspective?
- decided to roll the changes out beyond dairy, thereby extending the project reach to include pigs, sheep and arable production
- identified of key resources required to be able to deliver LEAN

Following project implementation a dissemination event to other colleges was delivered. Attendees requested a second ILM level 5 course to further their understanding and ability to embed within their organisations. This is being run in the new year for employers and other college's staff.

### Employer CPD

As a result of the employer enthusiasm and interest we have developed employer CPD to address the following skills gaps common to the sector;

- data management skills, specifically the use of data to drive management decisions

“

‘It is clear, even in the short time I spent with you at Reaseheath, that the project has enabled you to undertake work that is deeply rooted in teaching learning and assessment. It was fascinating to see how LEAN management is now embedded into the planning and delivery of programmes and the wider experience of students. The fact that Amy could quickly tell me without hesitation what LEAN management is and how it impacts on her and her future plans was a perfect summation of impact for me. Ben William, one of the core LEAN team showed clear commitment to the ‘cause’ and I found the way in which this embedding is planned to work in the LEVEL 3 extended diploma sandwich year project particularly interesting. Important to the Foundation is the sustainability of the project. How this is embedded within your practices and learning delivery is a positive indicator of achieving this’

**G PHILIPS**  
**HEAD OF WORKFORCE**  
**DEVELOPMENT EFT**

“

Despite being a very successful business, we have skills gaps, particularly around interpretation and use of data. This is the first year we will take a placement student as we can see how it could add value to our business’

**MARTIN BARKER**  
**MIDLAND PIGS**

“

We are really looking forward to working with our placement students on our improvement project. Both sides are going to learn a lot from this process’

**WALTER WALLIS**  
**HEAL FARM POTATO**  
**GROWER**

- Employer are introduced to Lean principles, tools and language to enable them to reinforce learning in the work place

## Lessons Learnt Through the Project

Senior Management buy in has been essential to the success of the project. A senior project champion from executive, legitimised the significant time, effort and additional resource that went into the project delivery. It also maintained high profile for the project, overcoming any barriers along the way.

Critical was the close working relationships between farm and curriculum staff. The project enabled the interweaving of previously diametrically opposed priorities, i.e commercial operations versus educational delivery. Student activity on farm whether practical or through stock duties have become part of the value creation within the commercial enterprise.

The large scale and ambition involved in the implementation of this project has resulted in a change in culture within the college and its farm, which is increasingly collaborative, self-confident and self-critical. This will provide benefits in the long-term to staff, students and employers.

The importance of having a core team upskilled in LEAN management. The fundamental principal underpinning LEAN management is one of continuous improvement, which requires a culture change. A LEAN team is required to be a core around which these changes can happen.

The importance of the allocation of time to the project, particularly to optimise the impact of the core LEAN team. Additionally the need for dedicated project management resource, over and above practitioner managers to deliver the project

The implementation of LEAN principles as a quality management system has had the benefit of enabling the project to continue and succeed despite the departure of two senior leads within the project team.



## Legacy, Reflection and Conclusion

Dissemination of the project to other colleges, provoked interest and a desire to adopt methods amongst college farm and curriculum managers. The principles of Dairy LEAN can be applied to both other landbased sectors and other industries.

The engagement with employers has stimulated demand for upskilling. CPD combined with the LEAN placements will help to both increase the efficiency of work places and provide a pipeline of highly skilled future employees.

The culture change required by the project means that there is a sustainable legacy. The principles have started to be adopted more widely across the college, with the core agricultural LEAN team practitioners delivering LEAN concepts to other curriculum areas.

Despite the commitment focus and time required to deliver the project, there has been a transformation within the department. Practitioners now have a very clear understanding of what outstanding teaching and learning looks like, and take pride in knowing that what is being delivered to the student is exemplary and will place students at the top of employers wish lists.