

ACCESS, SUCCESS AND INCLUSIVITY
WITHIN THE UNIVERSITY:
THE WEST CORK DAIRY FARMERS' RPL
PROJECT

Carbery Greener Dairy Farmer Group

Diploma in Environmental Science and Social Policy

University College Cork

What is RPL? <http://rpl-ireland.ie/>

RPL is defined as a process whereby prior learning from the work place or from other courses you have undertaken in the past, is given a value.



- This value equates to a:
 - ▣ Access to a higher education programme
 - ▣ Advanced entry to a programme
 - ▣ Awarding of credit or exemptions on the basis of demonstrated learning that has occurred prior to admission

What is RPL?

- It is a means by which this prior learning is :
 - ▣ Identified
 - ▣ Assessed
 - ▣ Acknowledged

- It is a means by which gaps in learning can be identified and addressed

- Prior Learning may have been acquired through formal, non-formal or informal routes

What is RPL?

- **Formal learning:** programmes of education or training delivered by recognised education and training providers that are assessed and can lead to awards.
- **Non-formal learning:** learning activities undertaken in the workplace, voluntary sector, community etc. that may be assessed but do not normally lead to certification.
- **Informal/experiential learning:** acquired through life and work experience. The learning is unintentional and the learner may not recognise at the time that it is contributing to their knowledge, skills and competence.

What is RPL?

- Recognition of prior learning (RPL), describes a **process** used evaluate skills and knowledge acquired outside the classroom for the purpose of **recognising competence** against a given set of standards, competencies, **or learning outcomes**.

Why this Special ASB?

- To present a process/method that we have developed in order to establish a mechanism of awarding exemptions to the farmers based on the competencies they have developed on the Greener Famer's Project.
- To request exemptions for **5 modules (40 Credits)** of the Diploma in Environmental Science and Social Policy Programme.

Carbery Greener Dairy Farmers



Background

- Carbery Greener Dairy Farm Programme
 - 18 Farmers (across 4 co-ops - Bandon, Lisavaird, Drinagh and Barryroe)
 - Ireland's first model for best practice in sustainable dairy farming
 - Programme started in 2012 was designed in collaboration with Teagasc to **measure, monitor and optimise** resource allocation and best sustainable practice on farms
 - Main Objective of project:
 - *To introduce efficiencies and improve environmental sustainability on all Carbery milk supplier farms.*

Background

- Carbery Greener Dairy Farm Programme
 - Other Objectives of the project:
 - Measure the carbon footprint of milk on the dairy farms and identify potential for improvement
 - Measure soil fertility on farms and identify potential for improvement of nutrient efficiency
 - Measure energy (electricity, fossil fuels) and water use on farms and identify potential for improvement
 - Measure biocide use on farms and identify potential for reduced use
 - Assess the economic sustainability of the farms and the economic implications of the various aspects of implementing improvement plans on farms.
 - Implement an economic beneficial improvement plan on each farm in collaboration with Carbery milk quality and Teagasc advisors
 - Investigate the possibility of developing a protocol for measuring biodiversity on farms

Some measurements

- Increased number of grazing days, increased nitrogen efficiency, EBI (profit index) and more targeted manure spreading and their related carbon footprint reduction and impacts on income.

Measure	3-year targets	Footprint reduction	Income increase
Grazing season	+11 days	-1.9%	€4,445
N efficiency	+ 0.2%	-0.5%	€324
EBI	+ 14 units	-2.8%	€2,240
Manure spreading	+ 20% spring	-1.3%	€145
Total		-6.5%	€7,165

Soil Sampling

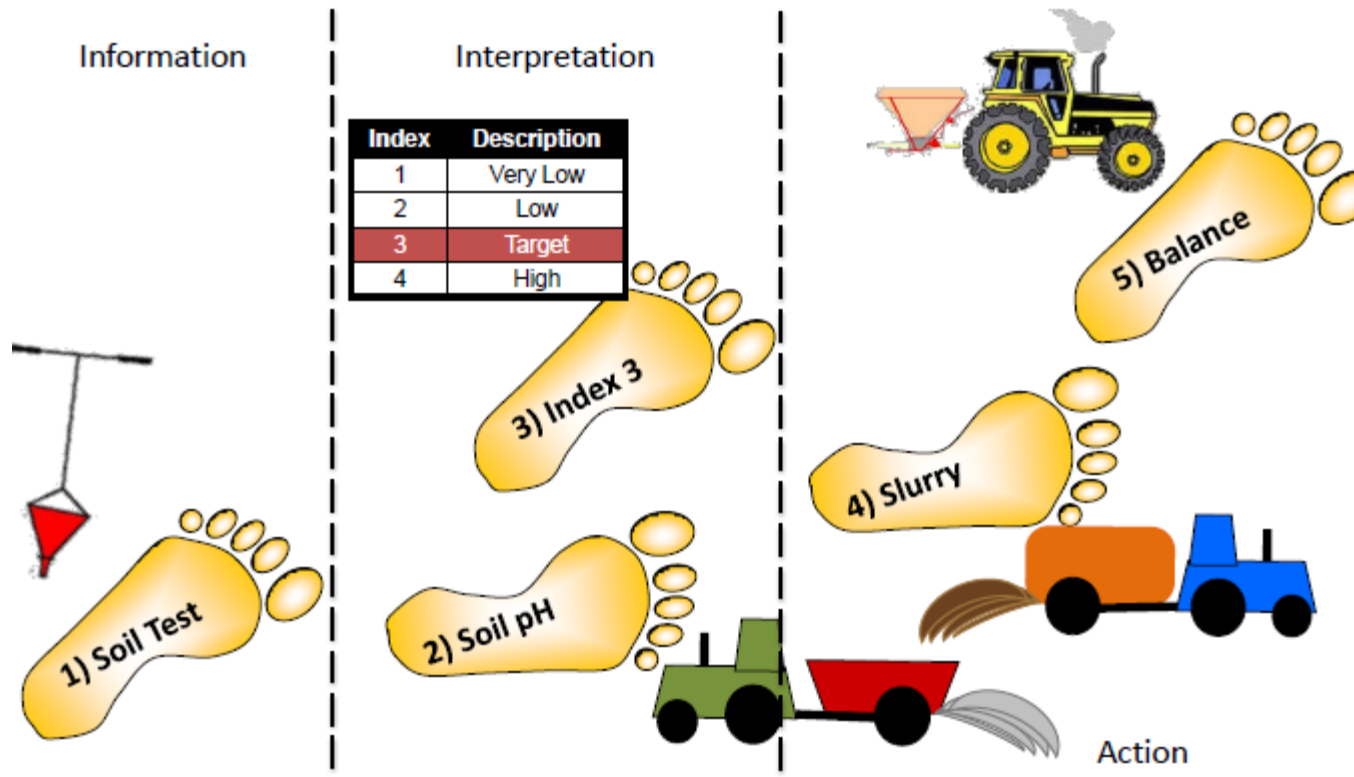


- Soil pH
 - Lime requirement
- Soil phosphorus (P)
- Soil potassium (K)

Index	Description		Morgan's P (mg/l)	Morgan's K (mg/l)
1	Very low	●	0-3	0-50
2	Low	●	3-5	51-100
3	Target	●	5-8	101-150
4	High	●	>8	>150

Soil Fertility

Steps to Soil Fertility Management

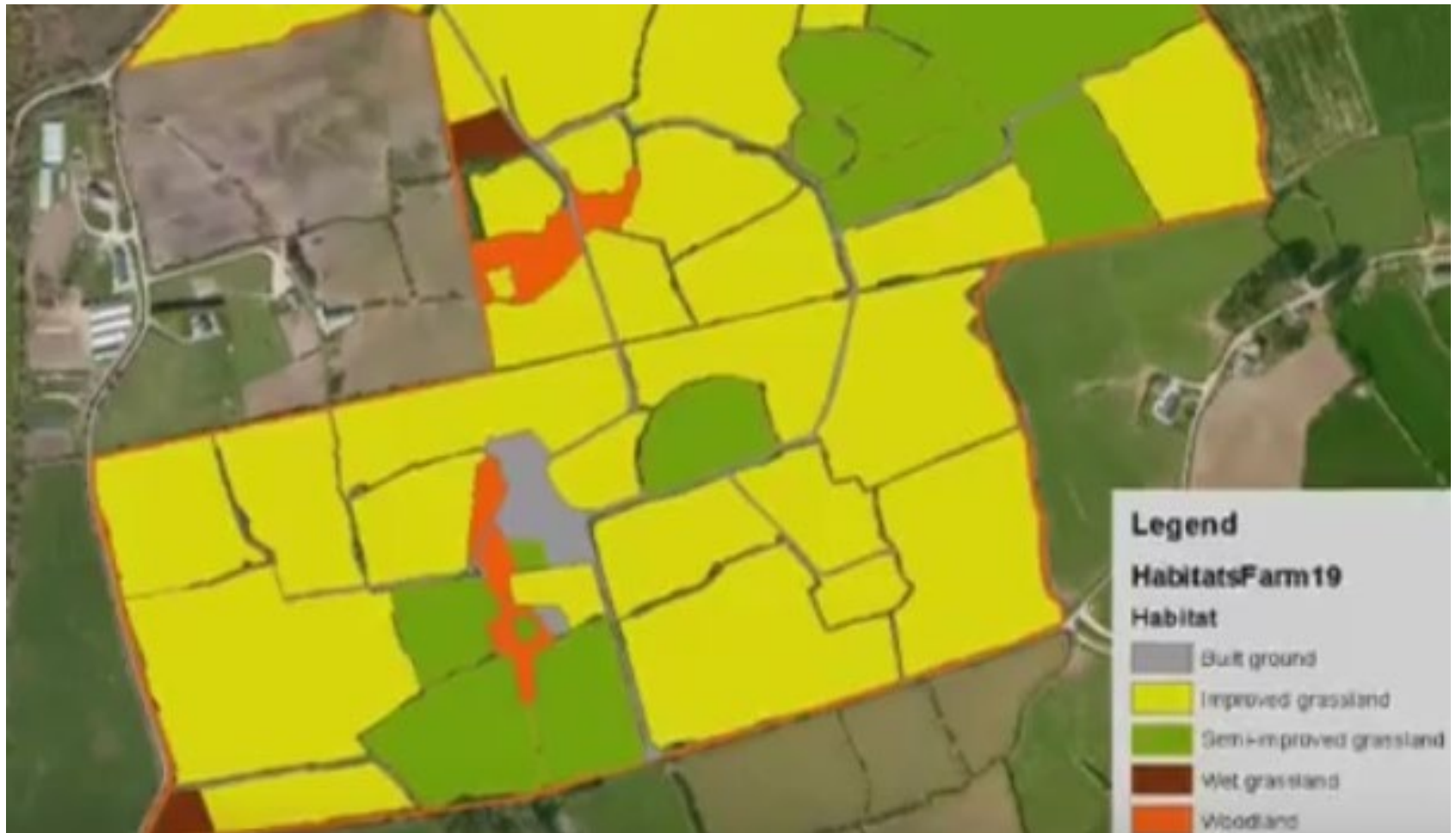


Liming the soil

- Liming based on soil testing results of Soil pH levels



Habitat Mapping



Use of renewable energy



Some more measurements

- Reduced Carbon Footprint
- Increased Nitrogen Efficiency in the soil
- Reduced electricity usage
- Reduced costs of heating water per litre of milk produced
- Increased milk solid production per hectare

Parameter	2012-14	2015
Carbon Footprint, kg CO ₂ e/kg milk	1.15	1.01
Nitrogen efficiency	21%	24%
Electricity, kWh/cow	199	187
Water heating, L water/L milk	0.16	0.13
Milk solids/ha	704	788

Carbery Tree Project

- CARBERY LAUNCHES FARMER TREE PROJECT TO ADDRESS CLIMATE CHANGE LOCALLY



- 20 native Irish trees each as a carbon offsetting measure, and also to increase biodiversity on their farms (1300 farms, 26,000 trees)



10 Reasons to Plant Trees

- Clean the air by absorbing dust, pollen, odours and pollutant gasses
- Planted near agricultural land, they stabilise the soil, enhance the land's capacity to store water, and moderate air and soil temperatures
- Combat climate change by capturing atmospheric carbon and offsetting carbon emissions
- Help prevent erosion by slowing runoff and holding soil in place
- Provide a viable, sustainable income from marginal land
- Provide a canopy and habitat for wildlife. Oak and birch provide excellent homes and food for birds, bees and a vast array of wildlife.
- Convert carbon dioxide to oxygen using the sun's energy
- Help generate employment in various industries from seed to sawdust
- Can moderate the effects of sun, wind and cold in extreme climates
- Can enhance the look and feel of local communities, and improve the health and wellbeing of the people.



METHODOLOGY

An ongoing and evolving process

Group RPL Assessment

- Each member of the Carbery Greener Dairy Farmer Project
 - Have completed the same training provided by Carbery Group and Teagasc
 - Attended same seminars and workshops
 - Taken part in same initiatives such as
 - Tree Planting
 - Water
 - Habitat Surveying
 - Soil Testing

Plan to start process

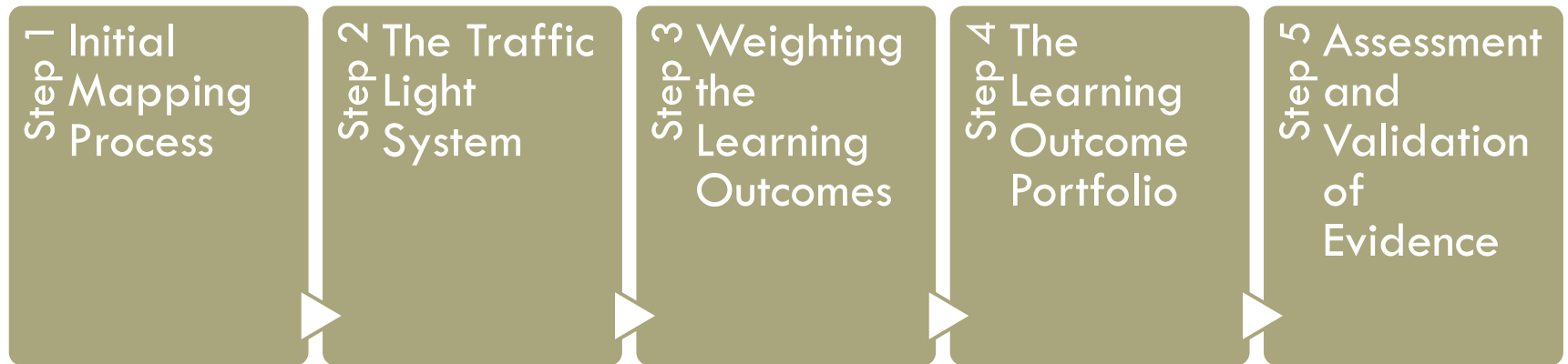
- Set up a qualified team to:
 - ▣ Ensure quality assurance mechanisms in place
 - ▣ Ensure best practice and use of RPL guidelines
 - ▣ Assessment is considered in a timely manner

- Schedule of meetings for team:
 - ▣ Communicate regular updates
 - ▣ Ensure guidelines and best practice are followed
 - ▣ Ensure adherence to requirements of NFQ and Academic Body

RPL Team

- Seamús O'Tuama - ACE Director
- Belinda Gascoigne - Course Co-Ordinator and Lecturer
- Enda Buckley, Sustainability Consultant - Carbery Group
- Dr. Ciara Staunton – UCC RPL Representative
- Dr. Caitriona Carlin - External Examiner, NUIG and UL
 - (past external examiner on the Diploma)
- Sinéad O'Neill - Adult & Community Education Officer
- Dr. Laurence Shalloo - Teagasc
- Keiron Phillips - EPA
- Darragh Enright - Student Representative
- Sinéad Treanor, Sustainability Manager and Paddy Barrett, Quality Assurance Manager - Carbery Group

The Method



Methodology of RPL Project

- Initial Mapping Process
 - Traffic Lights System - Red, Orange, Green
 - Red - not achieved, Orange - partly achieved , Green – achieved
 - Initial results were based on the percentage of each of the learning outcomes achieved per module based on the traffic light scheme
 - Red - 0% achieved , Orange - 25%, 50%, 75% achieved, Green - 100% achieved
- Visit to Ballineen
 - Identified with team on-site more clearly the extent of learning achieved in each LO
 - Tabulated this information into number of the learning outcomes achieved per module and the resulting percentage

Diploma in Environmental Science and Social Policy

Programme Learning Outcomes			
Year 1			
Code	Module	Credits	Learning Outcomes
AD1871	Environments for Living Organisms	5	Explain how chemical and biological stresses limit the distributon of organisms
			Distinguish between autogenic and allogenic changes in environmental conditions
			Compare primary and secondary succession
			Define the structure or an energy pyramid
			Outline biogeochemical cycles
AD1872	The Physical Environment	10	Appreciate the importance of oceans, oceanic processes and functioning to people
			List and characterise the various subdivisions of Earth's structure
			Comprehend the concept of Plate Tectonics
			Recognise samples of basic rock types and minerals
			Recognise the main rock types how they form and what they can tell us of ancient environments
AD1873	Environmental Systems and Resource	10	Summarise the main features of life existing during Precambrian, Palaeozoic, Mesozoic and Cenozoic
			Recognise the main types of deformation structures
			List the sources, benefits and hazards of renewable, non-renewable and alternative strategies
			Differentiate between hazardous and non-haz waste
			Compare the main types of treatment technologies
AD1874	Development and the Environment	5	Assess the environmental consequences of mining industries
			Assess the benefits and hazards of nuclear power
			Appreciate water as a resource
			Discuss relevant legislation
			Explain the basic economic concepts of Supply, Demand and Equilibrium
			Analyse how markets operate
			Compare the various methods of international policy intervention
			Examine various issues affecting a society, which can make it more susceptible to violence and conflict
			Critically analyse conflict situations and the response of international bodies
Year 2			
AD2850	Social Policy and the Environment	5	Recognise the nature and likely sources of poverty
			Distinguish between 'light green' and 'dark green' approaches to the environment
			Give an account of what type of institutions and policies has the Irish government created in relation to sustainable development
			Discuss the prinicipal factors that influence the transport and planning issues in urban and rural areas
			Explain the land use and transportation policies
AD2851	Analysing and Managing Environment	10	Demonstrate knowledge of the roots of conflict
			Define what pollutant is and what are the possible sources
			Demonstrate an assessment of air, noise, soil, and water pollution and proper use of the monitoring equipment and techniques
			Perform a risk assessment calculation
			Outline the optimum ways of rehabilitating contaminated sites
AD2852	Introduction to Environemental Polici	10	Identify the stages of conducting an Environmental Impact Assessment
			Recognise the different types of environmental mitigation and the hierarchy of individual mitigation measures
			Outline the government policy regarding the renewable sources of energy
			Interpret the statuory procedures applicable to renewable energy and waste management projects
			Identify , using an example, the impact of local legislation/National legislation/European legislation
AD2853	Health and Human Needs	5	Identify the principle steps associated with implementing ISO 14001:2004 and EMAS
			Demonstrate knowledge of the principles of sustainability
			Recognise the benefits associated with an improved energy rating of buildings
			Examine the benefits and hazards of using genetically modified products, organic gardening
			Discuss relevant legislation
			Recognise the health effects of radon exposure, and how we can protect outselves from it
			Evaluate the main effects AIDS has on economic development

Methodology continued

- Identified from these initial results the LO achievement required more analysis:
 - Order of importance in module learning
 - Key skills, knowledge and competency

- Each module based on 100%
 - LO's assigned weighting based as a percentage

- Re-ordered and Weighted Learning Outcomes
 - Based on key skills, knowledge and required competence of LO
 - Based on assigned weighting

Weighted Learning Outcomes					
Module	Learning Outcome	Weighting	Achieved	Complete	
AD 1871	1 Outline biogeochemical cycles	25	12.5	50%	
	2 Explain how chemical and biological stresses limit the distribution of organisms	20	20		
	3 Distinguish between autogenic and allogenic changes in environmental conditions	20	20		
	4 Appreciate the importance of oceans, oceanic processes and functioning to people	15	0		
	5 Compare primary and secondary succession	10	10		
	6 Define the structure of an energy pyramid	10	10		
	Module Total	100	72.5		
AD 1872	1 List and characterise the various subdivisions of Earth's structure	25	0		
	2 Recognise samples of basic rock types and minerals	20	10	50%	
	3 Comprehend the concept of Plate Tectonics	20	0		
	4 Recognise the main rock types how they form and what they can tell us of ancient environment	15	0		
	5 Recognise the main types of deformation structures	10	0		
	6 Summarise the main features of life existing during Precambrian, Palaeozoic, Mesozoic and Cenozoic	10	0		
	Module Total	100	10		
AD1873	1 Appreciate water as a resource	20	20		
	2 Discuss relevant legislation	15	15		
	3 List the sources, benefits and hazards of renewable, non-renewable and alternative energies	15	15		
	4 Differentiate between hazardous and non-haz waste	15	15		
	5 Compare the main types of treatment technologies	15	7.5	50%	
	6 Assess the environmental consequences of mining industries (slurry spill, gorse fires, etc)	10	0		
	7 Assess the benefits and hazards of nuclear power (wind, wave, solar)	10	0		
	Module Total	100	72.5		
AD 1874	1 Explain the basic economic concepts of Supply, Demand and Equilibrium	25	25		
	2 Analyse how markets operate	25	25		
	3 Compare the various methods of international policy intervention	25	25		
	4 Examine various issues affecting a society, which can make it more susceptible to violence and conflict	15	0		
	5 Critically analyse conflict situations and the response of international bodies	10	0		
		100	75		
	Year 1 Total		58%		

Weighted Learning Outcomes					
Module	Learning Outcome	Weighting	Achieved	Complete	
AD 2850	1 Give an account of what type of institutions and policies has the Irish government created in	25	18.75	75%	
	2 Discuss the principal factors that influence the transport and planning issues in urban and ru	20	0		
	3 Explain the land use and transportation policies	15	0		
	4 Demonstrate knowledge of the roots of conflict	15	0		
	5 Recognise the nature and likely sources of poverty	15	0		
	6 Distinguish between 'light green' and 'dark green' approaches to the environment	10	5	50%	
		100	23.75		
	Module Total				
AD 2851	1 Identify the stages of conducting an Environmental Impact Assessment	25	0		
	2 Define what pollutant is and what are the possible sources	25	25		
	3 Demonstrate an assessment of air, noise, soil, and water pollution and proper use of the mc	20	20		
	4 Perform a risk assessment calculation	15	15		
	5 Recognise the different types of environmental mitigation and the hierarchy of individual m	10	10		
	6 Outline the optimum ways of rehabilitating contaminated sites	5	0		
		100	70		
	Module Total				
AD 2852	1 Demonstrate knowledge of the principles of sustainability	30	30		
	2 Identify, using an example, the impact of local legislation/National legislation/European leg	20	20		
	3 Interpret the statutory procedures applicable to renewable energy and waste management	20	15	75%	
	4 Outline the government policy regarding the renewable sources of energy	20	10		
	5 Identify the principle steps associated with implementing ISO 14001:2004 and EMAS	10	0		
	Module Total	100	75		
AD 2853	1 Examine the benefits and hazards of using genetically modified products, organic gardening	35	0		
	2 Discuss relevant legislation	25	12.5	50%	
	3 Recognise the benefits associated with an improved energy rating of buildings	20	15	75%	
	4 Recognise the health effects of radon exposure, and how we can protect ourselves from it	15	0		
	5 Evaluate the main effects AIDS has on economic development (Avian Flu etc)	5	0		
	Module Total	100	27.5		
	Year 2 Total		49%		

Methodology continued

- Less than ~~20%~~ 40% of module LO's achieved
 - Require full module to be studied

- More than ~~70%~~ 40% of module LO's achieved
 - Requires no further study
 - Will be graded using a reflective log from each farmer
 - Module exemption being considered

- **Template** for capturing evidence
 - Portfolio of group achievement of learning outcomes

- Requirements to complete programme of study:
 - Plan of study for remaining modules
 - Rubric for remaining assessment and gap analysis
 - Change agreement from ASB

Assessment Evidence

- Devised template for LO Portfolio
 - ▣ Based on best practice - Cedefop, CIT
 - ▣ Layout
 - Module Code
 - Learning Outcome Number and Description
 - Evidence of how LO was achieved
 - Supporting documentation, reports, training etc.

LO Template

Module
Learning Outcome 1
Please describe how this learning outcome was achieved.
Please attach any supporting documentation (e.g., external report, external validation) if applicable.

Completed Learning Outcome Example

Module AD 1873

Learning Outcome 1

Appreciate water as a resource

Please describe how this learning outcome was achieved.

Farmers participating in the Carbery program through both the program and the accompanying and prerequisite agricultural work, learned in great detail about legislation concerning the preservation of environmental systems and resources through seminars, talks and instruction

- Farmers have learnt in detail about the practical application and relevance of the current EU Nitrates directive and how it seeks to protect water resources from agricultural pollution and specifically how it is implemented in Ireland through Ireland's Nitrates Action Program (NAP).
- Farmers have learnt about the rationale behind the directive by learning about how nitrogen and phosphorus pollution harms the environment. Farmers particularly have learned how nitrogen and phosphorus can be harmful pollutants to water e.g. causing eutrophication in water ways and in groundwater supplies and how to monitor this.
- Farmers also learnt about the Water Framework directive and how it seeks to protect water resources and ecosystems from different types of pollution. Farmers particularly studied how the directive tries to regulate potential sources of pollution that might be relevant to agriculture: slurry, oil spillage, animal manure, pesticides and through practical application have monitored and have introduced safeguards on their farms
- Farmers specifically learnt about the properties of water that could be influenced by such pollution such as the composition; chemicals, minerals, pH, hardness and salinity of water and how these properties of water were affected by pollution
- Farmers take annual water tests to assess water under the above criteria to ensure they were protecting water in accordance with legislation
- Farmers are aware and compliant with the Department of Agriculture's Cross Compliance regulations concerning the safe production of food, welfare of animals, prevention of pollution, and conservation of natural resources such as water
- Farmers examined the issue of water sustainability and its importance for the growing human population, animal population and the environment
- Farmers learnt how water sustainability could be improved well enough to put the knowledge to practical effect: They reduced water usage on farms, while also conducting annual water tests to ensure water was unpolluted and of high quality

Assessment Evidence

- **Validity/Relevance:** Does the prior learning presented clearly correlate with the learning outcomes required for the programme/module?
- **Level:** Is the learning at the academic level required for the award? Does it meet the appropriate level descriptors in the NFAQ? Is it equivalent to the standard expected of other students?
- **Currency:** How long has it been since the learning was acquired? Is it up to date with current knowledge and practice? Have there been any significant developments since the learning was acquired that might undermine its adequacy?
- **Sufficiency:** Is there enough evidence to demonstrate that the learning outcomes have been achieved?
- **Authenticity:** Is it clear that the prior learning is that of the applicant? Can it be verified?

LO Template Review

- ALL Learning Outcome Templates were reviewed by:
 - ACE RPL Team
 - External Examiner Dr Caitriona Carlin, NUIG/UL
 - Student Representative
 - Dr. Laurence Shalloo - Teagasc
 - Keiron Phillips – Environmental Protection Agency

Feedback

- External Examiner - Dr. Catriona Carlin
 - “Overall the team have done a huge deal of work in putting together the LO documentation. Some rephrasing is needed for clarity in some ie students have learnt/would be familiar –just from a tense point of view
 - There are some that have very good examples of evidence – i.e. the habitat mapping... in most cases they just need to rephrase the evidence section to show the learning in the correct tense

Feedback

□ Dr. Laurence Shalloo - Teagasc

- The farmer cohort satisfy the learning outcomes identified through the evidence given and examples such as follows:
 - Nutrient management driven by soil tests and planned nutrient advise to maximise nutrient efficiencies
 - Business planning and budgeting through a number of case studies
 - Benchmarking through in depth evaluation of the profit monitor over time and across farms
 - Evaluating carbon footprints of the farms and understanding the factors driving the footprints
 - Evaluating energy demand and benchmarking across farms and between years
 - Evaluating water footprints and benchmarking across farms and between years
 - Bull selection including the active bull list, cross breeding and the next generation herd
 - Biodiversity mapping and evaluating the options to increase the biodiversity status of the farms

Feedback

□ Keiron Philips - EPA

- “I found the course content to be extremely detailed covering a wide range of scientific, sociological and economic disciplines, with a combination of material that is directly familiar to students with an agriculture background - Carbery Greener Famer cohort
- “I have no doubt that the remaining modules will prove intellectually challenging but varied in content and theme that it will prove rewarding and interesting to the students going forward”
- “There are repeated themes throughout the modules which will assist in cementing and reinforcing the learning outcomes already achieved”
- “Recommendation: I feel the course might possibly benefit from some future-casting on both the short and medium to long term, i.e. how might Brexit influence the market, to how climate change could affect agriculture, and it’s important to stress the potential benefits, not just potential drawbacks”
- “Farmers with self-sufficiency in power, fuel, feed etc. as learned through the greener dairy farm project will future proof themselves against potential shocks be they climate, economic or socially driven. Its worth stressing this as well.”

Feedback

□ Student Representative

- “I believe that the achieved learning outcomes for these module were a fair reflection of what was covered in the course”
- “Perhaps increase the achieved mark slightly as the Nitrogen cycle would have been the major element and is important in studying other items, water pollution etc.” - felt that it was harsh and should have higher weighting
- “Many areas in these module are fairly assessed as they are very close to agricultural topics and clearly show there relevance in the agricultural arena”
- “The knowledge of legislation with regards to sustainability would be an important part of a modern farmers remit and the learning outcomes are in my opinion a fair reflection of this prior and taught knowledge as described in the learning outcome evidence”

Feedback

- Carbery GDF
 - programme is a very important project for Carbery ,as we recognise that if our farmers are not sustainable economically and environmentally then Carbery itself will not be sustainable.
 - We see the project as adding value(profitability) to the suppliers ,while at the same time minding and improving the environment.
 - These suppliers have already spread the meaning of sustainability which is now easily understood by all suppliers in West Cork ,and being embraced by them ,where as when we started off suppliers were afraid of the word as they didn't understand it
- It is also very powerful and positive for our customers

Course - Learning Outcomes

Module	Credits	No. LO's	LO's achieved	% Achieved
AD 1871	5	6	4.5	72.50%
AD 1872	10	6	0.5	10%
AD 1873	10	7	4.5	72.50%
AD 1874	5	5	3	75%
AD 2850	5	6	1.25	23.75%
AD 2851	10	6	4	70%
AD 2852	10	5	4	75%
AD 2853	5	5	1.25	27.50%

Modules being proposed for exemption

Total Exemption 40 credits from a 60 Credit Course

Year 1 Modules

- AD1871 Environments for Living Organisms (5 Credits)
- AD1873 Environmental Systems and Resource (10 Credits)
- AD1874 Development and the Environment (5 Credits)

Year 2 Modules

- AD2851 Analysing and Managing Environment (10 Credits)
- AD2852 Introduction to Environmental Policy (10 Credits)

What does this mean for each Farmer?

- Farmer will be awarded 40% for each module exempted.
- In order to be graded on those modules, farmers will be asked to submit a short **Reflective Journal per module** which will be assessed and graded based on a rubric developed by the RPL Team.

Modules to be achieved by Farmers

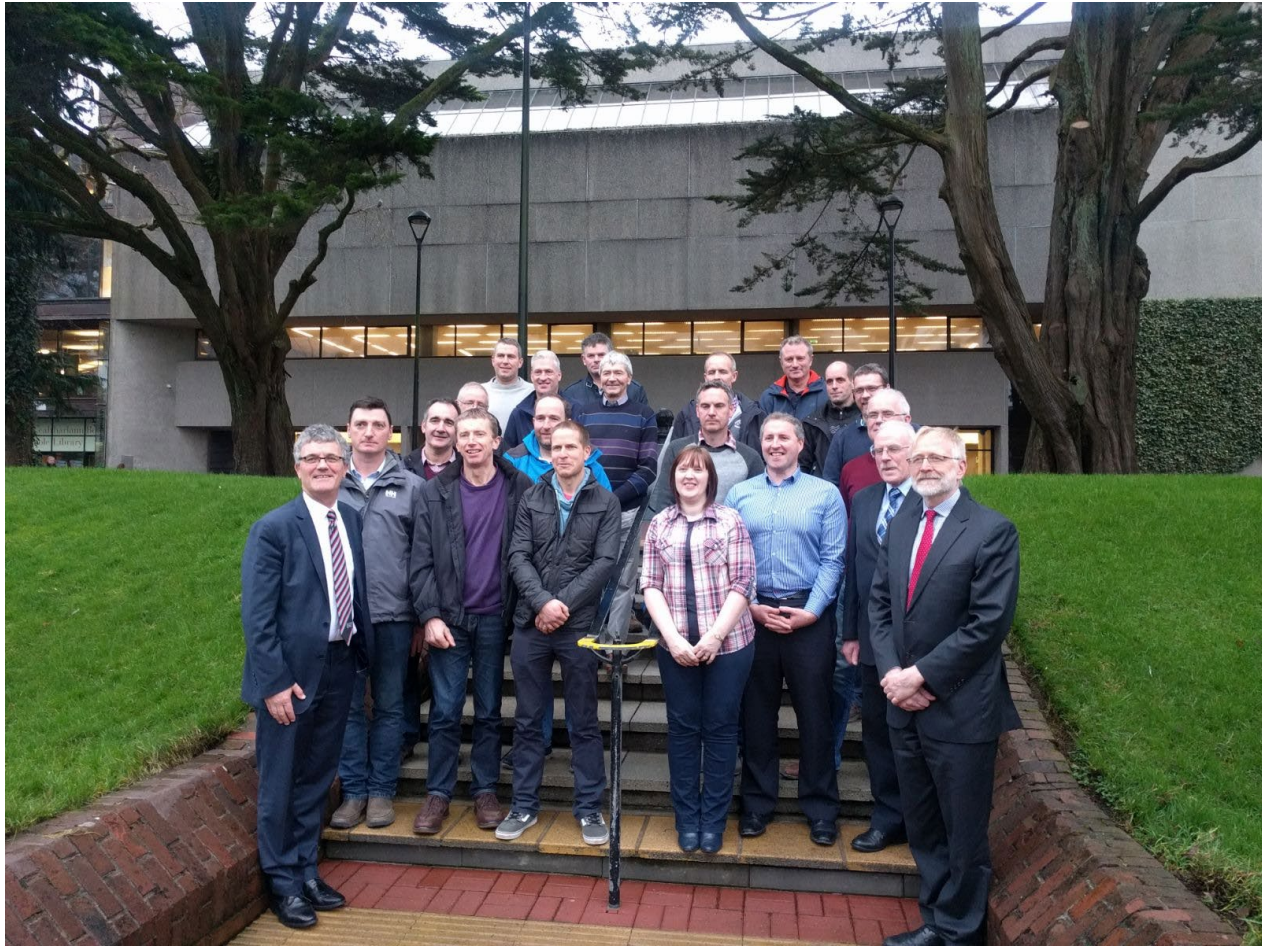
- 10 Credit Module - AD 1872
- 5 Credit Module - AD 2850
- 5 Credit Module - AD 2853

Proposed Delivery Mode

- 10 Credit Module - AD 1872 – approx. 48 hours
- 5 Credit Module - AD 2850 – approx. 24 hours
- 5 Credit Module - AD 2853 – approx. 24 hours

- Total contact hours needed - 96 hours
 - Panopto recorded Lectures - 48 hours (16 lectures)
 - On-site ½ day lectures (10) - 40 hours
 - Full day – UCC – 8 hours





Remaining Assessment

- AD 1872 (10 Credits)
 - ▣ Exam and 1500 word essay

- AD 2850 (5 Credits)
 - ▣ Exam and 1500 word essay

- AD 2853 (5 Credits)
 - ▣ Exam and 1500 word essay

Next Steps

- Approval from ACE ASB for Module Exemptions
- Finalise cost to farmers
- Register farmers for outstanding modules
- Roll out of remaining modules to farmers
- Farmers conferred with the Diploma in Spring 2018.





Thank You