IAgrE Student Awards

NOMINATION SUMMARY

~~IAgrE CNH Industrial Award~~* / Student Project Award*
Safety Award*
***please delete as appropriate:**

PROPOSER: (usually Course Director/Head of Department)

Name: Rhys James

Position: Lecturer

University/College: ColegSirgar
Gelli Aur Camps,
Home Farm
Golden Grove
Camarthen
SA32 8NJ

Contact details:	**Tel:01554748583**	**Email: rhys.james@colegsirgar.ac.uk**

DETAILS OF NOMINATION:

Name of Student/Group of Students:
Rhys Jones

Personal contact details (i.e not college) to enable us to contact the student(s) once their course has ended:

07722 037422	07722 037422	**Email:** Rhysdjjones@gmail.com

Name of course studied: Level 3 City and Guilds Extended Diploma in Land based Technology

Period studied	**From:September 2023**	**To:July 2025**

Qualification to be gained:
180 Credit extended diploma

Project Title:
Hydraulic Lifting Sheep Race

Details of material submitted with nomination: (Project/Exec Summary/videos etc)

Powerpoint presentation

SIGNED BY PROPOSER: DR James	**DATE SUBMITTED:** 22/10/25

If you wish to provide any additional information to support this nomination, please do so in a covering letter. When complete, return this form, together with the supporting documents, to

The Secretariat, IAgrE, The Bullock Building (Bldg 53), University Way, Cranfield, Bedford MK43 0GH
secretary@iagre.org

NB All work submitted is treated with complete Confidentiality; no part of the paper will be published by IAgrE except for the Title and Name of the winner in each category.

Cyflwyniad prosiect

Project presentation

•••

Rhys Jones
Agricultural Engineering level 3

CefndirBackground

My name is Rhys Jones, I live in Cwmllynfell which is in the Swansea valley, I’m currently employed part time at Amaeth Cothi for Arwel Jenkins repairing agricultural machinery.
And at home we have a Beef and sheep hill farm

Nod a Amcanion Aims and Objectives

The aim of this project is to create something new also to improve health and safety and to make a job easier. Also we can improve an implement which already exists. It is my aim to reduce the health and safety risks and to improve the safety of individuals who work in the industry. I was required to create 4 initial concepts

HSE
Health & Safety Executive

Ymchwiliad Research

For my research, I've gathered information from a variety of sources that have provided me with a well-rounded understanding of agricultural practices and the industry. One of the key events I have attend is the Lamma Show, which is one of the largest agricultural shows in the UK. It will offer a fantastic opportunity to see the latest innovations in farming technology and machinery, as well as to engage with industry professionals and experts.

Another significant event was the Royal Welsh Winter Fair Show. This show is renowned for showcasing the best Welsh agriculture, and attending it allowed me to learn about livestock management and sustainable farming practices directly from farmers and exhibitors.

In addition to these shows, I've utilized various books available in the college library, such as Farmers Weekly. This publication is a rich resource filled with articles on current trends, market analysis, and expert opinions, which have greatly enhanced my understanding of the agricultural machinery.

Moreover, I've consulted friends and family who have experience in farming, as well as work colleagues who bring different perspectives from their roles in the industry. Their insights have been incredibly helpful in shaping my research.

Lastly, I've accessed numerous online websites that offer a wealth of information on agricultural practices, trends, research findings. These resources have allowed me to stay updated on the latest developments in the field. By combining these diverse sources, I've been able to create a comprehensive view of the agricultural sector, which is essential for my research.

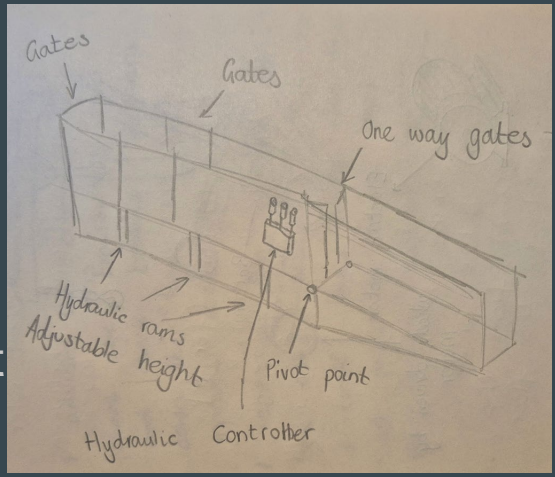
Career aspirations

From various experiences I have gained from college and also work experience at Amaeth Cothi. I enjoyed certain aspects of the job such as working on large harvesting machinery and I have also been fortunate enough to get a service role with a major manufacturer beginning in September 2025.

I am hoping that this role will be able to broaden my knowledge and skills in the industry and being able to go out and explore the country.

Cysyniad arfaethedig Proposed concept

After a lot of time researching, my chosen concept is going to be the hydraulic lifting sheep race, the electrical engine crane would have been an excellent idea because it can be used in multiple industries yet I have seen many different designs already on the market. I have not seen an hydraulic lifting sheep race on the market and I believe this would benefit myself better at home when handling sheep also to reduce strain on myself or the erdely in my family.



Cyfiawnder y syniad arfaethedig Justification of the proposed idea

I believe this concept will benefit the older farmers a lot more due to the fact that the average a of farmers in the UK are 65 years and over, these farmers might have past injuries or present injuries and this project idea will prevent them from straining themselves furthermore.

From personal experience I have struggled myself checking sheep udders and feet whilst benc down. And it would have been a major benefit that the sheep were at a greater height.

In 2023, depending on the measure used, each of these four industries could be ranked as most dangerous:

- Agriculture, forestry, fishing and hunting– experienced the highest death rate per 100,000 workers.

Age Group. In 2024, the highest proportion of farmers (38%) were aged 65 years and over, 30% were aged 55 to 64 years and 16% were aged 45 to 54 years. By contrast 15% of farmers were aged under 45 years and of those, 5% were aged under 35 years (Figure 5). 21 Nov 2024

Cyfiawnder y syniad arfaethedig Justification of the proposed idea

There are a approximate amount of 21 million sheep spread out across the UK. I believe that my product will increase efficiency in handling sheep and reduce strain on the handler and increase animal welfare by not turning them over.

One sheep is handled several times per year for their own health, this is including shearing, dipping, dosing, injecting and other reasons

The number of sheep and lambs in the UK decreased by 1.6% from December 2023 to December 2024 and now stands at **20.9 million**. During the same period the female breeding flock decreased by 5.0% to 13.1 million, while other sheep and lambs increased by 4.7% to 7.8 million (Figure 2). 27 Mar 2025

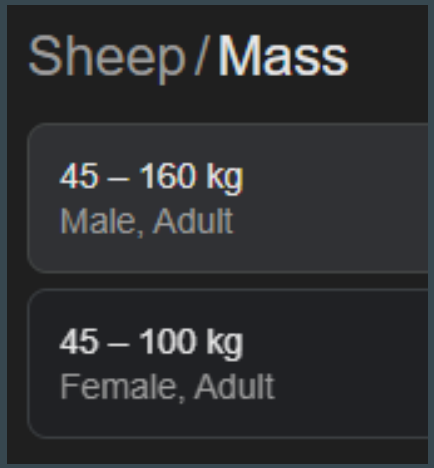
Cyfiawnder y syniad arfaethedig

Justification of the proposed idea

Fully grown females can weigh anywhere from 45-100 kg where fully grown males can weigh anywhere from 45-160 kg.

By having a efficient sheep handling system this will reduce strain and a possible injury to farmers also this will increase animal welfare

There are approximately 150,000 people in the industry who work with sheep, and the average age of these handlers is 65 and older



llinell amser

Timeline

		Week 1	Week 2	Week 3	Week 4
Nov	Reasearch and think of 4 project concepts	Reasearch	Reasearch	Reasearch	Reasearch Presenting 4 concept ideas
Dec	I then scored my 4 concept ideas to decide which product I would create.	Research which product will be most beneficial to the industry	Reasearch how the products will work/functio n		
Jan	I then chose my product idea and began designing and choosing various materials		Proposed concept presentation	Sketching	Began designing product on Cad
Feb	Enquring prices and the amount of materials would be needed to create product	Pricing materials		Buying materials	
March	Gathering various components	Buying hydraulic ram	Buying pins and other components.		
April	Begin the assembly of the product	Measuring, cutting, welding	Assembly	assembly	assembly
May/ June	Final touches of the product and present the product	Ensure that the product is strong and operates	Reinforce	Painting	Project presentation

Asesiad risg / Risk assessment

Hazard	Person(s) at Risk	Existing Controls	Risk Rating (see matrix)			HighMed Low	Any additional control measures required.
			Likelihood	Severity	Risk Score		
*Slip, trip and falls.	*Everyone in workshop	*Workshop to be kept tidy	1	1	2	Low	*All tools and parts to be kept out of the work space.
*Falling objects/ Components	*Person working on machine	*To be aware of surroundings and wear PPE	1	2	3	Low	*Steel toe capped boots to be worn at all times in the workshop
*Sharp objects	*Person working on machine	*Careful when handling sharp objects	2	2	4	Low	*Gloves to be worn when handling sharp objects
*Oil spillages	*Everyone in workshop	*Use a tray to catch oil	3	1	4	Low	*Use granules to soak up oil
*Danger of crushing	*Person working on machine	*Always use axle stands	1	5	6	High	*Always support loads with correct size axle stands
*Electrical tool fault	*Person using tool	*Electrical tools to be PAT tested	1	5	6	High	*Keep electrical tools well maintained
*Fire hazards	*Everyone in workshop	*Flammable objects kept away from ignition sources	2	5	7	High	*Fire extinguishers made easily accessible
*Lifting heavy weights	*Person or persons lifting	*Use appropriate lifting gear for things heavier than 23kg	2	2	4	Med	*Correct lifting gear for different weights
*Oil contaminating skin	*Person in contact with oil	*Use barrier cream before touching oily parts	3	1	4	Low	*Wear latex gloves to protect hands
*Dust contamination	*Person/persons in the workshop	*Do not use compressed air to clear dust e.g. Brake dust	2	3	5	Medium	*Wear breathing apparatus when in dusty conditions
*Crushing/ machine rolling	*Everyone in workshop	*Apply handbrake and switch off engine	1	2	3	Low	*Chock the wheels to stop movement

Costiau / Costings

Steel	£138.6
Bearings	£10
Hydraulic ram	£300
Paint / thinners	£38
Sheep weigh scales	£835

Cost without labour= £1321.6
Labour cost= £300
Cost with labour= £1621.60

Adnoddau/Resources

To create this project I would need various components to create this product;

Hydraulic ram / electric ram

Various pins

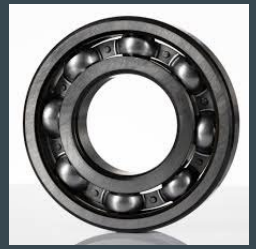
Hurdles / Gates

Weigh scale crate

Bearings

Various lengths and types

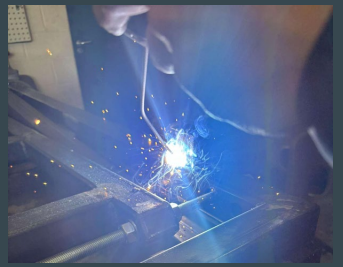
Of steel

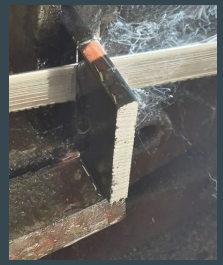


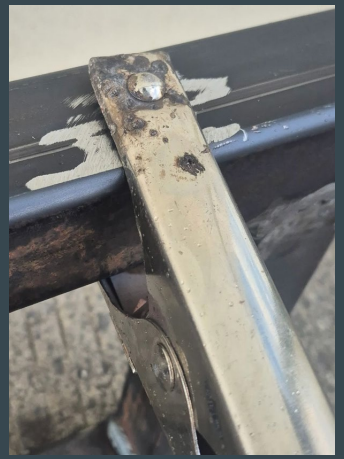
Offer a ddefnydd Tools used

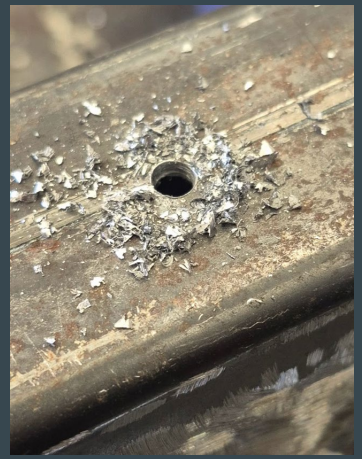
To create this product I used various tools. For the design process, I used CAD to design my project and then while manufacturing in the workshop I used various tools

Welders, lathe, band saws, drills, grinders, measuring equipment (tape measures, vernier calipers, squares)



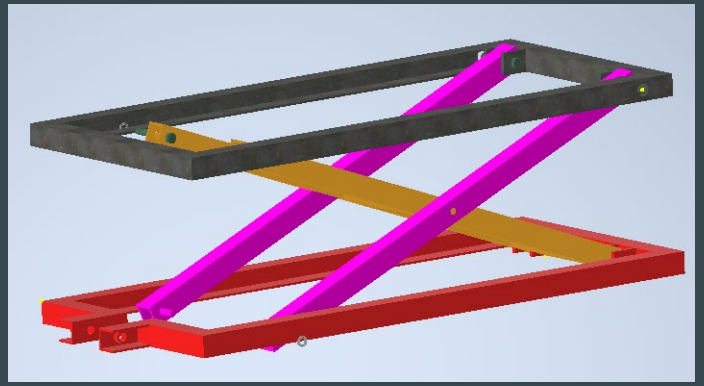






Creu'r prosiect

Creation of the project



Lifting Operations and Lifting Equipment Regulations (LOLE

What is LOLER?

LOLER applies to people who own lifting equipment such as jacks or cranes.
The businesses who own lifting equipment are eligible to manage their lifting equipment so it is safe for employees to use correctly, it is the employees responsibility to use the lifting equipment in a safe manner… the jacks have a weight lifting limit which can be exceeded easily, it is very important you do use the correct lifting method for the correct job, know how much your lifting implement can withstand, this could result in a crushing hazard if the correct jack isn't used. The lifting equipment should be thoroughly checked and inspected by a competent person who has had the correct training to do so.

It is my responsibility as the creator of this lifting product, is to ensure that the product is safe and strong enough to be used as intended.

MAINTENANCE

Maintenance for the project would involve lubricating the pivot points I could add grease nipples, make sure it is kept clean also check hydraulic pipes and connections

WHAT IS NEXT?

I hope to continue the development of my product in the future, as a result of building this prototype I have ideas and improvements to be tried and tested.

Diolch / Thank you

I would like to say a massive thank you to my family and friends for helping me along the way for creating this project.

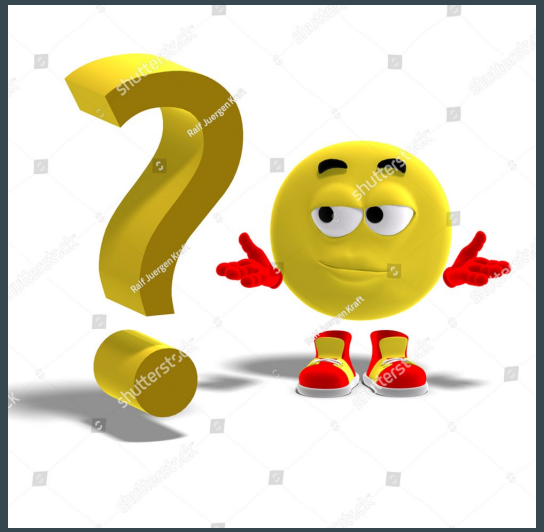
I would also like to thank my college lecturers for supporting me along the way

Geraint Evans, Rhys James, Jordan Hill and Jullian Summerfield

Thank you very much for listening

Are there any questions?

ANY QUESTIONS?



Thanks for listening