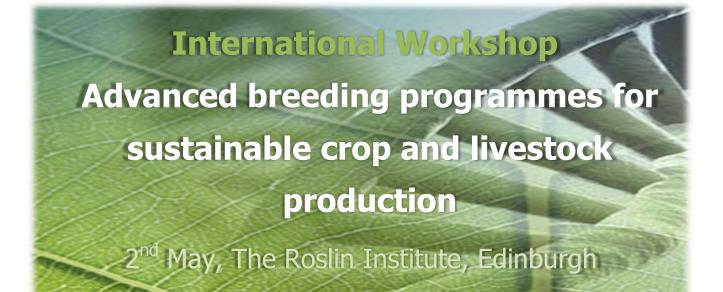
Technology Strategy Board

Knowledge Transfer Network ^{Biosciences}

Driving Innovation



Background

This workshop will highlight current applications of genomic selection in crop and livestock production, identify challenges and applications for the implementation of genomic selection in plant and animal breeding programmes, and review the current tools and technologies available for genomic selection. The workshop aims to bring together leading researchers and industrialist from the plant and animal breeding sectors, which do not normally collaborate extensively with each other, to exchange knowledge and share best practice in crop and livestock breeding.

Presentations from experts in the field will provide delegates with an understanding of the state of the art in DNA analysis technologies, and quantitative and statistical genetic techniques applied to crop and livestock breeding. An overview of the new genomic techniques and the application of genomic selection in breeding programmes will provide an opportunity for delegates to identify, and exploit best practice across the plant and animal breeding industries.

Workshop aims

The workshop will aim to:

- 1. Highlight the most recent results from plant, and livestock genomics research groups and the current methods used for plant and animal breeding.
- 2. Identify new or improved ways of managing breeding programmes based on experiences from other agriculture sectors (animal/plant production).

- 3. Achieve consensus on the best ways to exploit the new genomic technologies to deliver faster rates of genetic improvement using marker-assisted selection.
- 4. Develop stronger interactions between the plant and livestock genetic research communities to enhance the application of genetics and genomics technologies within the livestock and plant breeding industries.
- 5. Foster new research collaborations that are focused on delivering benefits for the crop and livestock industries and improving the biological understanding of the genetic architecture of key traits.

Workshop Benefits

The benefits of attending this workshop will be:

- An updated understanding of the state of the art in DNA analysis technologies and quantitative and statistical genetic techniques applied to crop and livestock breeding.
- A detailed overview of the new genomic techniques and the application of genomic selection in breeding program optimisation and appropriate research and knowledge transfer opportunities.
- The creation of a multidisciplinary (international) collaboration between the main groups working in this area.
- Identification of opportunities to collaborate, such as on shared cyberinfrastructure and analytical tools.
- An initial exploration of the opportunities for research in improving breeding techniques to deliver improved food security both in the UK and internationally.

Programme

Time	Торіс	Presenter	
08.30 - 09.00	Registration		
09.00 - 09.05	Welcome	David W. Burt	
		The Roslin Institute	
09.05 - 09.15	Aims and Objectives	Tom Jenkins	
		Biosciences KTN	
Session 1 – Genomic Selection: Opportunities and Applications in Crop and			
Livestock Production			
09.15 - 09.30	An introduction to genomic selection	Chris Warkup,	
		Biosciences KTN	
09.30 - 09.55	Implementation of genomic selection in	Dave McLaren,	
	commercial pig breeding	Genus plc	
09.55 - 10.20	Utilising genomic information in aquaculture breeding programmes	Ross Houston,	
		The Roslin Institute	
10.20 - 10.55	Challenges and advancements in poultry breeding	Victor Olori,	
		Aviagen	
10.55 - 11.25	Refreshments		
11.25 - 11.50	Implementation of genomic evaluations in dairy and beef cattle	Mike Coffey,	
		Scottish Agriculture	
		College	
11.50 - 12.15	Challenges and opportunities to using genomic selection in outbreeding crops	Leif Skot,	
		Institute Biological,	
		Environmental, Rural Sciences	
12.15 - 12.35	Challenges and opportunities to using genomic selection in inbreeding crops	lan MacKay,	
		National Institute Ag-	
		ricultural Botany	
	Genomic selection in non-food crops	Leopoldo Sanchez,	
12.35 - 13.00		Institut National de la	
		Recherche Agronomique	
13.00 - 14.00	Lunch	, grononique	
Session 2 – Tools and Technologies			
14.00 - 14.25	Statistical inference approaches in genomic selection	David Balding,	
		University College	
		London	

14.25 - 14.50	'Non-additive variance, algorithms and analytical tools'	John Woolliams,	
		Roslin Institute	
14.50 - 15.15	'Generating New Sequence and Genotypes'	Jerry Taylor,	
		University of Missouri	
15.15 - 15.45	Refreshments		
Poster Abstract Presentations: Opportunity for delegates to give 5 minute presentation			
on their poster.			
15.45 - 16.15	Plant Breeding		
16.15 - 16.45	Animal Breeding		
16.45 - 17.15	Statistical models/bioinformatics		
17.15 - 18.30	Drinks reception and poster presentations		
18.30	Depart from the Roslin Institute to Edinburgh		
19.30	Workshop Dinner in Edinburgh		