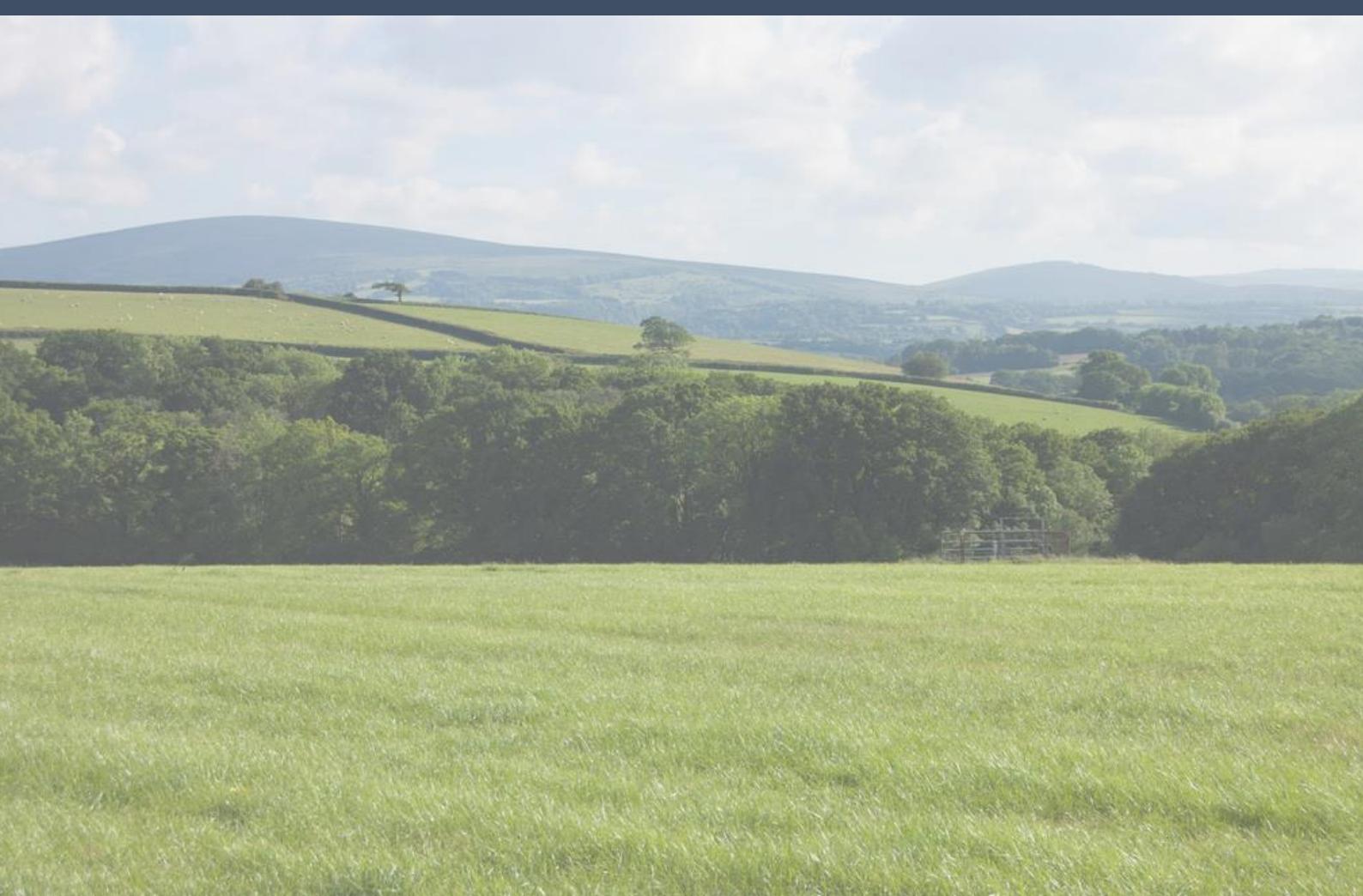


North Wyke Farm Platform

Livestock Data



User Guide

The North Wyke Farm Platform: Livestock Data

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Description: The North Wyke Farm Platform (NWFP) was established in 2010 to study and improve grassland livestock production at the farm-scale. The NWFP uses a combination of environmental sensors, routine field and lab-based measurements, and detailed management records to monitor livestock and crop production, emissions to water, emissions to air, soil health, and biodiversity. The rich NWFP datasets help researchers to evaluate the effectiveness of different grassland (and arable) farming systems, which in turn, contributes to the development of sustainable, resilient and net zero land management strategies. This document serves as a user guide to the collection and management of livestock data and is associated with other dedicated user guides that detail the design, establishment and development of the NWFP, and field events.

Site: North Wyke, Okehampton, Devon, UK. Geographic location: 50.76944, -3.90138; 50°46'10" N, 3°54'05" W.

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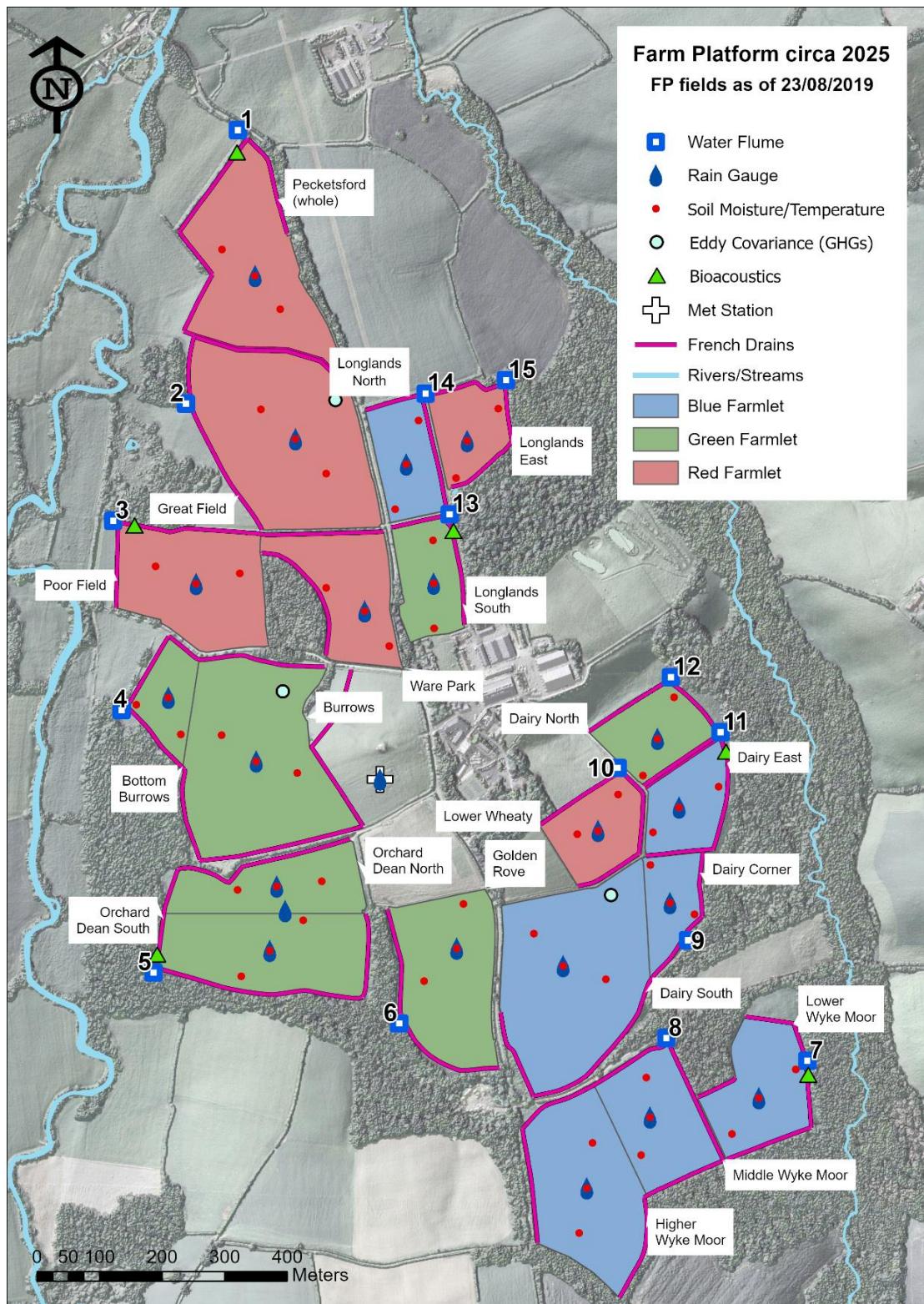
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1 Introduction

This document provides a guide to the livestock data produced on the NWFP (Figure 1). Information on the site characteristics and design and development of the NWFP can be found in the User Guide entitled 'NWFP_UG_Design_Develop.pdf' available on the NWFP website.

Figure 1. Map of the NWFP.



2 Cattle Management

A spring-calving suckler herd belonging to North Wyke is run as a separate enterprise grazing away from the NWFP. Until 2016, a Hereford x Friesian herd provided predominantly Continental x calves (Figure 2).

Calves graze with their mothers until weaning in autumn when the calves come onto the NWFP. They are housed and fed silage, and in addition, a small amount of concentrates may be fed for a short period before and after weaning to facilitate the change in their diet. In the first winter, concentrates (by-products only) are fed to maintain growth rates of 0.75 kg day^{-1} if nutritional needs are not met by silage alone.

Figure 2. Continental cross cattle.



In 2016, the decision was made to begin replacing the Hereford x Friesian dams and sires with pedigree Stabilisers™.

Figure 3. Stabiliser cattle.



The Stabiliser breed is a blend of British and Continental inputs including Hereford, Red Angus, Simmental and Gelbvieh. The first dams and sires were purchased in 2016 with their progeny first grazing the farm platform in 2017 (Figure 3).

In 2019, the Red farmlet was converted to arable cropping and the cattle that would have been associated with that farmlet are from

here on permanently housed from weaning to slaughter. This represents a fourth system (Brown farmlet) for evaluation of indoor intensive finishing.

3 Sheep Management

The North Wyke farm spring-lambing flock of Exlana ewes (Figure 4) provide the NWFP with ewes and their twin lambs to graze the farmlets (prior to 2022, the ewe breed was Suffolk x Mule). The breed of ram used varied during the early years of the NWFP up until 2013 (Texel, Charollais, Lleyn for first-time lambers), but from 2014-2022 only Charollais rams were used. Since 2022 Primera rams have been used.

Figure 4. Exlana ewes housed for lambing.



Lambs are weaned in early July each year then moved to other fields on their respective farmlet which are typically cut for silage in late May / early June. Until 2019, the numbers of animals grazing were balanced between the three farmlets but post 2019, following conversion of the Red farmlet to arable

cropping, grazing only occurs on the Blue and Green farmlets. Prior to 2019, when the pregnant NWFP ewes were housed for lambing, they re-joined a larger flock of approx. 360 ewes and were fed the same silage each year made from permanent pasture plus additional concentrates fed according to predicted litter size. In 2019, the Orr Small Ruminant Facility (SRF) building was completed which allows both the housing of the sheep during the winter period in their different farmlet groups as well as subgroups based on their predicted litter size.

4 Livestock Data

This section gives details of the cattle and sheep data that are available for download from the Data Portal. If in the 'Animal Location File', the location is stated as a number (without NW field designation), it means that the animal was grazing the entire catchment. In this case, the number is the catchment number. The codes used to denote the breeds of cattle and sheep in the Data Portal are given in [Appendix A](#) and [Appendix B](#) respectively.

4.1 Cattle Data

- Cattle Basic Data: Official Tag, Management Tag, Breed, Sex, Date of Birth, Sire/Birth Dam/Rearing Dam tags, Farmlet, Grazing year.
- Cattle Location Data: for each animal – the date it moved into a new field and the identifier of the field moved to. Animal Location Counts for each catchment can be generated from these data.
- Cattle Weight Data: Official Tag, weights for each date that animals have been weighed and/or assessed for body condition score [[Edmonson et al., 1989](#)].
- Cattle Sales Data: Official Tag, Date Sold, where Sold To, Final Live Weight and the date it was measured, Cold Carcase Weight, Conformation and Fat Class Score [[English Beef and Lamb Executive, 2012a](#)] and the Price received per kg of carcase.

4.2 Sheep Data

- Breeding Sheep Basic Data: Official Tag, Management Tag, Breed, Sex, Birth Year, Date of Birth, Sire/Birth Dam tags, Farmlet, Birth Litter Size.
- Breeding Sheep Location Data: for each animal – the date it moved into a new field and the identifier of the field moved to. From this can be generated Animal Location Counts for each catchment.
- Breeding Sheep Weight Data: Official Tag, weights for each date that animals have been weighed and/or assessed for body condition score.
- Lamb Basic Data: Official Tag, Management Tag, Breed, Sex, Date of Birth, Sire/Birth/Rearing Dam tags, Birth Litter Size, Rearing Litter Size, Farmlet, Grazing Year.
- Lamb Location Data: for each animal – the date it moved into a new field and the identifier of the field moved to. Animal Location Counts for each catchment can be generated from these data.
- Lamb Weight Data: Official Tag, weights for each date that any animals have been weighed.
- Lamb Sales Data: Official Tag, Date Sold, where Sold To, Final Live Weight and the date it was measured, Cold Carcase Weight, Conformation and Fat Class Score [[English Beef and Lamb Executive, 2012b](#)] and the Price received per kg of carcase.

5 Grazing and Cutting Management

From 2011 onwards the NWFP fields are continuously stocked [Allen, 2011] and any herbage which is not required for grazing is conserved as silage for winter feed for the cattle and sheep (Figure 5). The calves are allocated to the Green, Blue or Red farmlets (only up until 2018 due to grassland to arable conversion) at turnout each year. During winter housing the cattle and sheep are fed silage, but whilst the quantities harvested from each farmlet are measured (see Data Portal, Field Surveys) the material is combined and ensiled in the same clamps. The forage harvested in 2014, after the reseeding programme had commenced, was ensiled in separate dedicated Green, Blue and Red farmlet clamps and this is the case from then onwards. When there are additional cuts later in the season, these are made into big-bales which are labelled as belonging to the Green, Blue or Red farmlets. In 2020, AgBags were used for the first and only time instead of round bales.

Figure 5. Forage harvesting, ensiling in clamps, round bales, Agbags, and feeding of silage.



6 Data Portal

The NWFP Data Portal (<https://nwfp.rothamsted.ac.uk/>) allows accessibility to the core NWFP datasets to not only Rothamsted Research but also the wider research community. The data are open access and free to download but users are required to register their interest.

The NWFP website offers a wealth of online, and regularly updated information to complement the data: <https://nw-farmplatform.rothamsted.ac.uk/>.

7 Citing the Data

If you choose to use any of datasets provided by the NWFP in a publication, please cite:

- Orr, R. J., Murray, P. J., Eyles, C. J., Blackwell, M. S. A., Cardenas, L. M., Collins, A. L., Dungait, J. A. J., Goulding, K. W. T., Griffith, B. A., Gurr, S. J., Harris, P., Hawkins, J. M. B., Misselbrook, T. H., Rawlings, C., Shepherd, A., Sint, H., Takahashi, T., Tozer, K. N., Whitmore, A. P., Wu, L. and Lee, M. R. F. (2016). *The North Wyke Farm Platform: effect of temperate grassland farming systems on soil moisture contents, runoff and associated water quality dynamics*. European Journal of Soil Science, 67, 4, 374-385. ([doi:10.1111/ejss.12350](https://doi.org/10.1111/ejss.12350)).

In addition, if using data from the baseline period please cite:

- Takahashi, T., Harris, P., Blackwell, M. S. A., Cardenas, L. M., Collins, A. L., Dungait, J. A. J., Hawkins, J. M. B., Misselbrook, T. H., McAuliffe, G. A., McFadzean, J. N., Murray, P. J., Orr, R. J., Rivero, M. J., Wu, L. and Lee, M. R. F. (2018). *Roles of instrumented farm-scale trials in trade-off assessments of pasture-based ruminant production systems*. Animal, 12, 8, 1766-1776. ([doi:10.1017/S1751731118000502](https://doi.org/10.1017/S1751731118000502)).
- Orr, R. J., Griffith, B. A., Rivero, M. J. and Lee, M. R. F. (2019). *Livestock Performance for Sheep and Cattle Grazing Lowland Permanent Pasture: Benchmarking Potential of Forage-Based Systems*. 9, 2, 101-118. ([doi:10.3390/agronomy9020101](https://doi.org/10.3390/agronomy9020101)).

For the datasets used, please cite the latest version of the relevant User Guide PDF document(s), listed in the table below, that describe the establishment and development of the NWFP, and the various datasets produced in detail. The link to these can be downloaded from the NWFP website. Note that the User Guide entitled 'NWFP_UG_Design_Develop.pdf' should be cited irrespective of the dataset used.

Table 1. User guides to the NWFP data.

Data used	Main title of User Guide PDF document	DOI
All datasets	NWFP_UG_Design_Develop.pdf	https://doi.org/10.23637/rothamsted.98y1x
All datasets	NWFP_UG_Data_Guide.pdf	https://doi.org/10.23637/rothamsted.99440
15-minute time-series datasets (water, soil moisture, meteorology)	NWFP_UG_Hydrology&WaterQuality_Data.pdf	https://doi.org/10.23637/rothamsted.98y34
	NWFP_UG_SMS_Data.pdf	https://doi.org/10.23637/rothamsted.98y4x
	NWFP_UG_MET_Data.pdf	https://doi.org/10.23637/rothamsted.98y4w
Greenhouse gases	NWFP_UG_GHG_Data.pdf	https://doi.org/10.23637/rothamsted.98y52
	NWFP_UG_GreenFeed_Data.pdf	https://doi.org/10.23637/rothamsted.98y53
Field surveys	NWFP_UG_FieldSurvey_Data.pdf	https://doi.org/10.23637/rothamsted.98y51
Livestock	NWFP_UG_Livestock_Data.pdf	https://doi.org/10.23637/rothamsted.98y50
Field events	NWFP_UG_FieldEvents_Data.pdf	https://doi.org/10.23637/rothamsted.98y4z
Forage quantity and quality	NWFP_UG_Forage_Quantity&Quality_Data.pdf	https://doi.org/10.23637/rothamsted.992wy
Biodiversity	NWFP_UG_Biodiversity_Data.pdf	https://doi.org/10.23637/rothamsted.993x2

Also, please include the following sentences in the acknowledgments section:

"The North Wyke Farm Platform is a UK National Capability supported by the Biotechnology and Biological Sciences Research Council (BBS/E/RH/23NB0008)."

"We acknowledge the interests of the Ecological Continuity Trust (ECT), whose national network of LTES includes the experiment on which this research was conducted."

8 References

Allen VG, Batello C, Berretta EJ, Hodgson J, Kothmann M, Li X, McIvor J, Milne J, Morris C, Peeters A and Sanderson M (2011). An international terminology for grazing lands and grazing animals. *Grass and Forage Science* 66, 2-28.

Edmonson A.J., Lean I.J., Weaver L.D., Farver T. and Webster G. (1989). A Body Condition Score for Holstein Dairy Cows. *J Dairy Sci.* 72, 68-78.)

English Beef and Lamb Executive (2012a). Marketing prime beef cattle for better returns, EBLEX Beef manual 2, Stoneleigh Park, Kenilworth UK.

English Beef and Lamb Executive (2012b). Marketing prime lamb for better returns, EBLEX Sheep manual 1, Stoneleigh Park, Kenilworth UK.

9 Appendix

Appendix A. Cattle breeds and the official codes used to denote them in the data portal.

Cattle Breed	Abbreviation [‡]
Charolais cross	CHX
Hereford cross	HEX
Belgian Blue x Friesian	BBX
Limousin cross	LIMX
Stabiliser	ST
Stabiliser cross	STX

Appendix B. Sheep breeds and the codes used to denote them in the data portal.

Sheep Breed	Abbreviation
Charollais	CHA
Texel	TEX
Lleyn	LLE
Suffolk x Mule	SUFMU
Exlana	EXL

[‡] <https://www.gov.uk/guidance/official-cattle-breeds-and-codes>