



**Comparison report of International
Beef and Lamb Standards**

Part 1

England,
Australia and New Zealand

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Executive Summary

This report, produced by the team at Birnie Consultancy and scrutinised by a team of independent experts outlines a forensic comparison of Sheep and Beef standards in England (Red Tractor), Australia (Livestock Production Assurance (LPA)), and New Zealand (New Zealand Farm Assurance Programme (NZFAP)), as well as a high-level outline of the legislative framework in each country in which the assurance schemes operate. The report is part one of a series, with three further reports due to be released during 2024/25 which will draw comparisons with standards in other parts of the world. The analysis of the assurance schemes uses the Red Tractor scheme as the baseline for comparison, and, where a consumer perspective was required, this was taken from the viewpoint of the English consumer. However, we have tried to account for the range of production conditions in different countries through the application of weightings, which reflect the importance of a specific practice or assurance category in each country.

It is important to note that this report is not commenting on whether a scheme is classified as adequate or inadequate. Instead, it is a detailed comparison of the content of each scheme across a range of assurance categories, allowing the reader to understand performance in the areas which are important to them. The intention of this report is not to demonstrate that any one scheme is superior or inferior to other schemes. Rather, it is intended to evidence the current position of standards, enabling informed discussion regarding the future of regulatory and voluntary schemes/initiatives.

Analysis

To enable the analysis, and as a direct result of each assurance scheme containing its own modules and categories which did not facilitate straight comparison, a series of fourteen categories were devised, and each of the schemes were scrutinised to understand and report their performance in each of these categories:

1. Traceability, Documentation and Assurance
2. Personnel
3. Food Safety
4. Housing and Shelter
5. Feed and Water
6. Husbandry Procedures
7. Youngstock Management
8. Animal Health and Welfare
9. Animal Medicines
10. Biosecurity and Disease Control
11. Livestock Transport
12. Vermin Control
13. Fallen Stock
14. Environmental Protection

The analysis uses the Red Tractor scheme as a baseline for comparison, and, where a consumer perspective was required, this was taken from the viewpoint of English consumers. Scores were awarded to each scheme on the basis of how well it addressed the questions in each category (Appendix 1), and the question scores were then weighted within each category. The total section score was then weighted between the categories, and between the different countries in the study.

Country weightings

There are many common agricultural practices between each of the countries in the study, but the frequency of these practices is very different, and on occasion, very different management systems or practices are in place. Consequently, weightings were applied to reflect the importance of the practice in Australia or New Zealand relative to England, where the Red Tractor scheme was always weighted at 100. The LPA and NZFAP

schemes were weighted above or below this depending on how important each category is deemed to be with regard to farming practices and systems within the country where the scheme operates.

Category weightings

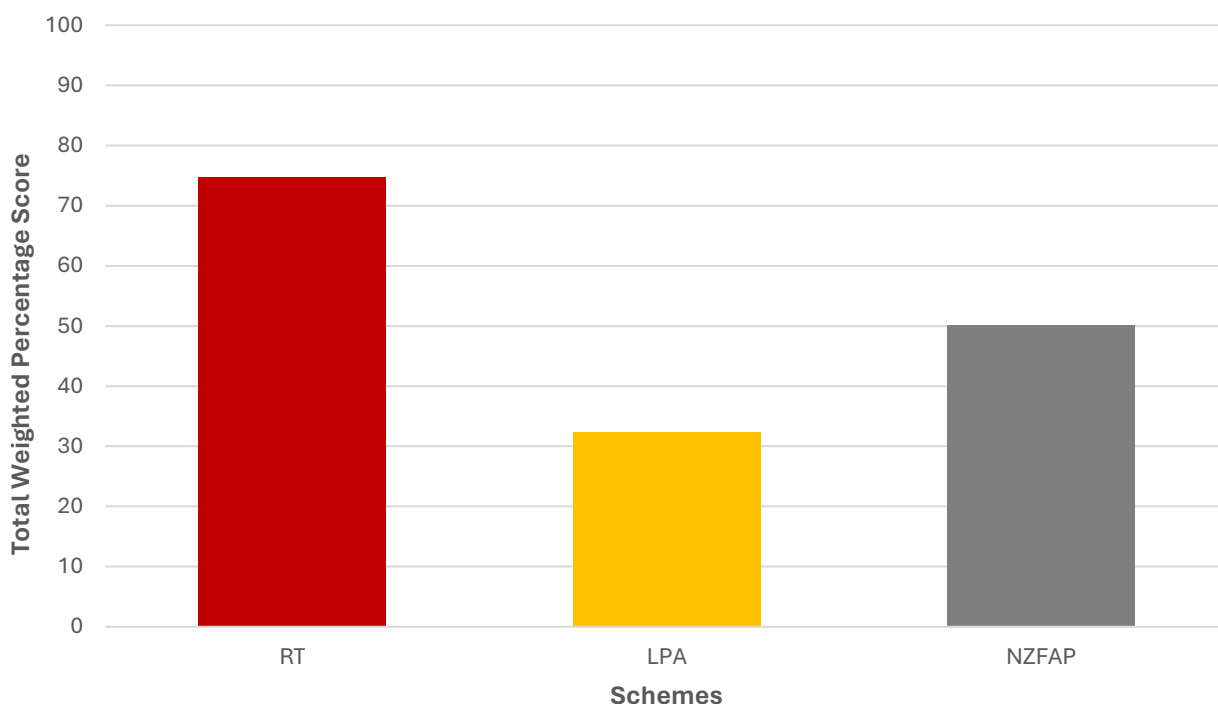
Each of the fourteen analysis categories were also awarded a weighting which reflected their relative importance to the other categories within the scheme.

Question weightings

Within each category some questions were recognised as more important than others, and weightings were applied to reflect the relative importance of each.

Summary of Findings

Figure 1. Final weighted percentage scores for each scheme



The overall findings from this study show that, when directly compared, Red Tractor achieves higher scores than the LPA and NZFAP schemes in most areas, with the only exception being biosecurity and disease control.

Although a scheme’s overall weighted score may be lower than another one, this does not necessarily indicate that the scheme is sub-standard. Agricultural practices and requirements vary between countries, and different customers have different requirements. As a result, assurance schemes and their requirements will also differ. For example, livestock housing is highly important in the UK, and therefore assurance schemes specify more requirements in this area, and consequently will score more highly than in schemes from countries where animals are rarely housed. We have attempted to account for this via the country weightings applied to each category.

Although each of the schemes is designed with its country’s unique farming systems and food chains in mind (which was taken into account during the weighting for this study), Red Tractor was consistently found to be more prescriptive, containing more detail than the other schemes, therefore allowing a clear review of each category’s requirements.

There are areas of potential improvement for every scheme in all categories. All of the schemes provide some degree of customer reassurance, but this does vary according to the scheme and the specific category of study.

Audit frequency, and type of audit were used as one indicator of the effectiveness of the scheme. Red Tractor audits are the most frequent, conducted in-person every 18 months with NZFAP in-person audits required every 3 years (although processors may require more frequent audits to meet customer demand).

The effectiveness of the LPA scheme was more difficult to determine, as it does not publish how many farms are enrolled in the scheme, nor its inspection frequency. LPA indicates that it inspects around 3,000¹ farms annually, with two-thirds of these drawn at random from all members.

Summary of Legislation

The legislative framework in each country was researched as part of this project. This was not a forensic analysis, but was designed to uncover the broad base legislation against which farms operate and which will inevitably form some of the requirements within assurance schemes. Legislation is useful, but by itself is rarely inspected. Farm assurance schemes provide a degree of assurance around adherence to legislation because this usually forms part of the inspection process.

With the exception of the 'biosecurity and disease control' and 'vermin control' categories, legislation was found for every other category in the study which forms a base for all the standards. Although most of the legislation found has the same goal, and a lot of the same provision, it varies from country to country although not many substantial differences were found.

Conclusions

Although Red Tractor scored higher than either LPA or NZFAP, there are areas of potential improvement for every scheme in all categories. Legislation was found that could be applied to almost all of the categories, providing a good legislative base for the standards.

All of the schemes provide some degree of customer reassurance, but this does vary strongly according to the scheme and the specific category of study.

¹ Integrity Systems "Preparing for an LPA audit" May 2022

Introduction

The following report outlines a forensic comparison of English Beef and Lamb standards using Red Tractor, Australia's Livestock Production Assurance (LPA) and New Zealand Farm Assurance Programme (NZFAP) farm assurance schemes, as well as a high-level outline of the legislative framework in each country in which the assurance schemes operate. The analysis of the assurance schemes uses the Red Tractor scheme as the baseline for comparison, and, where a consumer perspective was required, this was taken from the viewpoint of the English consumer. Scores were awarded out of 10 for each question, and the score awarded was in relation to what would be the 'ideal' answer to each question.

It is important to note that this report is not commenting on whether a scheme is classified as adequate or inadequate. Instead, it is a detailed comparison of the content of each scheme across a range of assurance categories, allowing the reader to understand performance in the areas which are important to them. The intention of this report is to evidence the current position of standards, enabling informed discussion regarding the future of regulatory and voluntary schemes.

The report has been produced in response to requests to AHDB from industry partners to commission a study into standards of domestic production in comparison to key international competitors, identifying strengths and weaknesses in different global standards. This is the first of a series of studies which will be completed throughout 2024:

- Part One – Australia and New Zealand (Beef and Lamb)
- Part Two – Ireland, the Netherlands, Poland, Germany and Spain (Beef and Lamb)
- Part Three – US and Canada (Beef only)
- Part Four – Brazil (Beef only)

Agricultural context within each study region

Assurance schemes are voluntary standards which establish production standards covering (but not being restricted to) food safety, animal welfare and environmental protection. Each of the countries in this comparison operate within different frameworks and have different foci. As independent standards, they have the ability to go above and beyond what legislation requires and help to promote farming to the general public.

England

Farm assurance in England commenced with a basic series of standards which were designed to enable the scheme to be accessible to consumers while still raising standards. Over the years different schemes have developed, adding new requirements as consumer expectations change and issues of concern arise. There is still considerable push-back on occasion as new standards are introduced to meet emerging demand, sometimes from farmers and sometimes from processors due to the difficulties associated with meeting some expectations. Several different farm assurance schemes operate in England, but almost all of these operate alongside Red Tractor. English farm assurance schemes include:

Red Tractor

Very well established in England, Red Tractor was created to revive consumer confidence in British food. It was set up in 2000 and has been operating for over 20 years and is the most well-known and accepted scheme in England, sought after and respected by processors, retailers and consumers.

LEAF Marque

A global assurance system that recognises sustainable food production, LEAF Marque is underpinned by integrated farm management, which is a site-specific, whole farm approach to farming.

RSPCA Assured

Developed by the Royal Society for the Prevention of Cruelty to Animals (RSPCA), this standard covers every aspect of the animals' lives, including feed and water provision, the environment they live in, how they are managed, health care, transport and humane slaughter/killing.

Australia

Farm assurance has been introduced in Australia to meet demand from consumers. This was predominantly aimed at the international consumers, but now also has an internal focus. Standards development in Australia is at a different stage to that in the England or New Zealand. Australia is a major exporter of beef and lamb, but it does not have a European focus, instead exporting the majority of product to Asian markets, where the demand (until recently) has not been extensive for farm assured product. With recent changes in demand from Asia (with more assurance being required), and with the growing opportunity for Australia in Europe and particularly the UK, the need for farm assurance is also growing.

However, farm assurance is not as widely accepted in Australia in the same way in which it is in England and New Zealand (although it is not universally accepted in both these countries either). Consequently, the coverage of farm assurance is not at the same level as in England and New Zealand, and there is still some distance to go in persuading the majority of farmers to participate. This presents Australia with a challenge in that standards which meet international requirements could be deemed too stretching by many farmers, discouraging participation in the scheme by new farmers. Australian farm assurance schemes include:

Livestock Production Assurance (LPA)

LPA is the Australian industry's own assurance programme but is one of several which are accepted within the country. However, the majority of other schemes are controlled by commercial supply chains. The fact that commercial supply chains have developed their own farm assurance systems might indicate that they do not believe that the more widespread LPA offers the required assurances to access markets, but nevertheless the LPA scheme remains the most recognised of the Australian livestock assurance schemes.

JBS Farm Assurance

An on-farm management system, JBS Farm Assurance covers six Australian states and covers criteria for animal health and welfare; animal traceability from birth; on-farm management of structures, equipment, feed and water; environmental management and sustainability; chemical use and storage; and transportation.

Meat Standards Australia (MSA)

This is an eating quality assurance scheme. Developed by the Australian red meat industry, MSA aims to improve the meat-eating quality consistency of beef and sheep meat. MSA accredited graders collate information from the producer, supervise processing standards and collect individual carcass attributes using a uniform set of standards. Results are allocated to an individual carcass and the outcome results in eating quality information for individual cuts combined with days of ageing required and recommended cooking methods. MSA is widely accepted in Australia, driven by commercial returns to the farmer and processor.

New Zealand

Farm assurance was introduced in New Zealand partially in response to demand from the UK. As UK retailers made more use of the Red Tractor standard and as it gained consumer recognition, demand emerged for assurance of agricultural production outside of the UK. As the UK was one of New Zealand's most important markets, the industry in New Zealand responded through the introduction of company driven farm assurance schemes aimed at meeting the needs of the UK market.

Farm assurance in New Zealand has developed strongly since this time, with a gradual development of the standards, and a move towards centralised assurance (as opposed to company based), as well as the introduction of independent auditing. The standards have become more detailed and focused on local needs, and on providing assurance to the international consumer than standards are acceptable. Because

international supply is a key focus for New Zealand producers, the majority of farms are covered by farm assurance.

New Zealand Farm Assurance Programme (NZFAP)

NZFAP is the New Zealand industry's own assurance programme, having been created via the amalgamation and development of a number of different company schemes. The scheme is widely accepted within New Zealand.

Outline of farm assurance schemes chosen for study

The schemes studied within this report were chosen because they have the widest coverage of any farm assurance scheme within their specific region. It is also important to note that Australian and New Zealand supply chains are export focused and are therefore designed to meet customer expectations in various different export markets. Assurance schemes can be augmented by other programmes to provide higher levels of assurance if required for specific markets.

There are a variety of additional bolt-ons available (e.g. European Union Cattle Accreditation Scheme² (EUCAS) in Australia and New Zealand Farm Assurance Programme Plus³ (NZFAP+) in New Zealand). Only the core standards have been considered for the purposes of this report. Currently, uptake is relatively limited, but is likely to increase for EUCAS as more UK and European markets are targeted and for NZFAP+ as the bolt-on becomes better known and accepted by New Zealand Farmers.

Red Tractor

All Red Tractor farms are inspected every 18 months. This interval is appropriate for England, as it allows inspection of farms during different seasons and stages of production, e.g. when animals are housed and when they are out at grass. Audits are carried out by independent auditors under the control of the two licenced certification bodies NSF and Intertek SAI Global.

Red Tractor deliver approximately 60,000⁴ supply chain inspections annually (farms, transporters, processors etc), delivered by over 350 independent inspectors. Approximately 3,000⁵ farms of all types (livestock, arable and produce) failed the inspection and were suspended from the scheme in 2020, and had to apply corrective measures. These farms had their approval removed until the corrective measures were evidenced.

Most inspections are announced, and the farmer can prepare for the audit. However, depending on the nature and number of non-conformances found during routine inspections, members may be subject to unannounced inspections – numbers for which are not available.

Red Tractor facilitate a range of commercial bolt-ons and retain the ability to create additional general access bolt-ons where this is deemed to meet the needs of the industry.

Livestock Production Assurance

LPA inspects around 3,000⁶ farms annually. There are approximately 33,500⁷ beef and sheep farms in Australia, but it is unclear how many are enrolled in the scheme or what the inspection frequency is as the information is not published. LPA audits are conducted by AUS-MEAT auditors either in person or online each

² <https://www.mla.eu/articles/supply-chain/the-eucas-scheme>

³ <https://www.nzfap.com/nzfap-plus-programme-structure/>

⁴ Red Tractor

⁵ Red Tractor, redtractor.org.uk "Our Impact & History"

⁶ Integrity Systems "Preparing for an LPA audit" May 2022

⁷ Australian Government Department of Agriculture, Fisheries and Forestry "Financial Performance of Livestock Farms 2020-21 to 2022-23"

year to ensure that on-farm management systems comply with their standards. Just as with Red Tractor, inspections are announced so the farm is able to prepare.

We have used the current version of LPA to carry out this analysis, but we note that a revised version of the standard will be launched in the second half of this year. We also note that LPA facilitate the application of bolt-on standards to enable the needs of specific markets to be met, for instance EUCAS which is focused on supply into the European market.

New Zealand Farm Assurance Programme

NZFAP farms are audited every three⁸ years by independent auditors under the control of the appointed certification body, Quality Consultants of New Zealand (QCONZ) and has around 8,000⁹ farms registered to the scheme. It has more than 40¹⁰ red meat companies and industry organisations as members.

As with the other schemes, inspections are announced to allow farms to prepare. Farms are provided with an audit summary and, depending on the nature of the non-conformance are given target dates for completion, although it is unclear how the green and amber infractions (details below) are followed up:

- Blue - Pass/certified
- Green (Minor Corrective Action Request (CAR)) - not certified, correction action required. CARs identified where there is no risk to programme conformance. CARs issued with 30 days to rectify or sooner by agreement with the auditor.
- Amber (Major CAR) – not certified, corrective action required. CARs identified where there is a possible risk to programme conformance. CARs issued with 30 days to rectify or sooner by agreement with the auditor.
- Red (Critical CAR) – not certified, urgent corrective action required. CARs identified where there is an immediate risk to programme conformance. Corrective action required within 24 hours. If not rectified within 24 hours, certified status is revoked immediately and checked by re-audit. Relevant meat companies notified.

New Zealand also operate an environmental bolt-on called NZFAP Plus. This scheme focuses on enabling the farmer to demonstrate their sustainability credentials to the consumer. We note that, at present, only a relatively small number of New Zealand farmers are currently signed up to NZFAP Plus, but that it is likely that this number will grow over time.

Coverage of legislation within the study

As part of the study programme, legislation within each region was investigated. This was not a forensic study to the same level of detail as delivered for the assurance schemes but was intended to give a broad understanding of the legislative framework in which farming is taking place and the assurance schemes are being delivered. An important factor to note for this study is, that just because a component is contained within legislation, it will not be considered to be part of the assurance scheme (and scored accordingly within this study) unless the scheme specifically refers to it and audits against it. This is because farm assurance audits take place much more frequently than government inspections against regulatory compliance and thus the presence of legislation alone does not guarantee compliance. The legislative framework in Australia is more complex than for New Zealand or England and is usually managed at a state level. Because of this complexity, we provide indicative examples from certain states to illustrate the type of legislation which exists, although it is acknowledged that there are often differences from state to state.

⁸ New Zealand Farm Assurance Programme “*Standard Version 5 – October 2022*”

⁹ New Zealand Farm Assurance Programme Website “*Frequently Asked Questions*”

¹⁰ Rural News “*Farm assurance scheme grows*” 09 June 2022

Independent Experts

To ensure that this series of reports is as credible as possible, four independent experts were recruited from an open process to scrutinise the findings of this report. At different stages they were invited to provide constructive feedback to enhance the quality of the report and ensure credible, authentic, and independent conclusions were drawn. The experts reviewed and approved the following aspects of the study;

1. *The key assessment criteria utilised by the research agency.*
2. *The final scoring associated with the assessment.*
3. *The relevant weightings of the scores, to ensure as accurate and robust a comparison as possible.*
4. *The final report's findings, ensuring they are accurate.*
5. *The final report's key conclusions, ensuring they are credible.*

Mandy Lucas, Farm Animal Welfare Consultant

Subjects covered in this report: Biosecurity and disease control; fallen stock; traceability and documentation

Mandy is an experienced animal welfare specialist who is committed to socialising animal welfare throughout the supply chain, from primary producer to consumer.

She has been successful in facilitating conversations across global, diverse supply chains to understand animal production methods and welfare changes created by current farming methods, while providing practical solutions and pragmatic compromises to improve animal welfare whilst balancing the commercial business needs and sustainability goals.

Jude Capper, Livestock Sustainability Consultant and Harper Adams University

Subjects covered in this report: Environmental protection; feed and water; livestock transport; vermin control

Jude is an experienced animal scientist, with a record of publishing results in high-impact journals, using her skills to educate and inform global food system stakeholders. She has two main roles, acting as both the ABP Chair and Professor of Sustainable Beef and Sheep systems at Harper Adams University (HAU) in Shropshire, UK; and as an independent Livestock Sustainability Consultant.

Jude's research focuses on modelling the sustainability of livestock production systems, specifically dairy, beef and sheep. She is currently working on projects relating to on-farm greenhouse gas emissions from UK beef and sheep production; the sustainability of smallholder farming, and the impacts of livestock health on system sustainability. Jude is a liveryman of the Worshipful Company of Butchers and Treasurer of the National Beef Association. She is also Chair of the Route Panel for Agriculture, Environment and Animal Care and Vice-Chair of the Green Apprenticeships Advisory Panel at the Institute for Apprenticeships and Technical Education.

Nigel Scollan, Queen's University, Belfast

Subject covered in this report: Food safety; housing and shelter; personnel; young stock

Director of the Institute for Global Food Security (IGFS) and Chair of Agriculture & Sustainability at Queen's University, Belfast, Nigel's research seeks to underpin the development of more sustainable and resilient food supply chains with focus on animal protein.

His research includes advancing the development of metrics to describe sustainability of farm systems and is using large and multi-data systems and machine learning approaches to support on-farm decision making to underpin the sustainability credentials of supply chains.

Jonathan Statham, Farm, Veterinary Surgeon & Livestock Sustainability Consultant

Subjects covered in this report: Animal health and welfare; animal medicines; husbandry procedures

A graduate of Cambridge University Veterinary School, Jonathan has over 25 years of experience in the industry. He is Chief Executive of RAFT Solutions Ltd, Chair of Bishopton Veterinary Group, and Professor of Sustainable Livestock Health & Welfare at Harper & Keele Veterinary School.

Jonathan holds, and has held many prestigious posts including President of the British Cattle Veterinary Association (BCVA) and the Yorkshire Veterinary Society as well as having sat on the GB 'Cattle Health & Welfare Group' (CHAWG), GB 'Sheep Health & Welfare Group' (SHAWG), the Veterinary Policy Group (VPG) of the British Veterinary Association (BVA) and is a past director of Cattle Health Certification Standards (CHeCS) and member of the 'Farmskills' Steering Group.

He is currently Chair of the Animal Health and Welfare Board England, a member of the GB Ruminant Health & Welfare Steering Group and Veterinary Products Committee of the Veterinary Medicines Directorate (VMD). He is Professor of Sustainable Livestock Health & Welfare at Harper and Keele Veterinary School and chairs the InSHAW (Institute for Sustainable Livestock Health and Welfare) Leadership Group.

Methodology

Three farm assurance schemes were analysed as part of this report; Red Tractor Beef and Lamb, a UK assurance scheme; Livestock Production Assurance, an Australian industry assurance scheme which is focused on beef and lamb production; and NZFAP (New Zealand Farm Assurance Programme), a New Zealand based industry scheme which provides assurance for beef and lamb production, as well as for deer.

The direct comparison of farm assurance schemes is not straightforward. Schemes are designed for different reasons and have diverse foci. Most schemes are structured differently, containing a range of modules and topics, and governing different practices. This is appropriate as production practices differ very strongly across the world. As a consequence, we have carefully designed the analysis process to enable a balanced comparison of the standards, based on the typical production processes in the regions where the schemes are used.

The reports have focused on a forensic analysis of the standards contained within each assurance scheme, as well as on the summarisation of the country legislation which is relevant to each scheme. The analysis of the legislation is not forensic, but it intended to provide an outline of the legislative framework within which each scheme is implemented. The principles of analysis which were applied to the assurance schemes are detailed below.

We emphasise that this report is not commenting on whether a scheme is adequate or inadequate. Instead, it is a detailed comparison of performance across a range of areas, allowing the reader to understand performance in categories which are important to them.

Analysis by category

A series of categories were devised for the farm assurance analysis. This was a direct result of each assurance scheme containing its own modules and categories which did not facilitate a straight comparison. Fourteen categories were created and the content of each scheme for each category was compared, and a score applied subjectively, based on how well it addresses the criteria. This necessitated the summarisation of the relevant content of each scheme and its entry into a database for comparison against the other schemes for each category. This was deemed to be the fairest way to enable comparison. The categories included:

- Traceability, Documentation and Assurance
- Personnel
- Food Safety
- Housing and Shelter
- Feed and Water
- Husbandry Procedures
- Youngstock Management
- Animal Health and Welfare
- Animal Medicines
- Biosecurity and Disease Control
- Livestock Transport
- Vermin Control
- Fallen Stock
- Environmental Protection

Assessment against a series of outcome questions

Because the schemes were so different, a line-by-line comparison was not possible. Instead, each scheme was assessed against a series of questions within each category. The questions for each category are shown in each of the category analysis sections below and are also shown in Appendix 1.

Equivalence

The analysis has employed the principle of equivalence throughout. It is not sensible to mark a scheme down if it does not address a practice which does not exist or is highly infrequent in the region in which it is targeted. A typical example of this is the practice of creating ‘cryptorchids’ instead of full castration. This is virtually never used in either the UK or Australia but is common in New Zealand and therefore their standard has to address it, whereas it does not need to be addressed in the other schemes.

Application of weightings to the data to reflect the relevant impact of each component

To reflect the value of each scheme component, a series of weightings were applied to the data. Weightings are acknowledged to be at least partially subjective and are a judgement call from experts who have in mind the expectations of UK consumers, as well as the scientific evidence for best practice. Three levels of weighting were applied:

- 1) **Within category weightings** were applied to each question within the category to reflect the fact that some of the assessment questions asked in each category are more important than others
- 2) **Between country weightings** were applied to the total score from each category to reflect the importance of each category within each country
- 3) **Between category weightings** were applied to the total score from each category to reflect the relative importance of the categories in relation to each other

A worked example is provided at the end of this section to show how the weightings were applied.

Application of weightings within each category

A first weighting was applied within each category. Each of the questions posed combine to give an overall assessment of the suitability of the scheme. However, some of the questions deal with issues which are more important than those addressed by other questions. As a consequence, it is important to reflect the importance of each question using a weighting within the category, with 10 representing the highest importance and 1 the lowest. This weighting was used with the raw score for each question to produce a total weighted score for each scheme for each category.

Application of country weightings

Within the analysis we have applied country weightings for England, Australia and New Zealand for each category within the analysis. The application of weightings is an extension of the ‘Equivalence’ principle. In each of the different countries, there are common practices, but the frequency of these practices is very different. Consequently, for the scores applied to each analysis section we have applied weightings relative to England, where the Red Tractor scheme is weighted at 100 for everything and the LPA and NZFAP schemes are weighted above or below this depending on how relevant each factor is deemed to be with regard to farming practices and systems within the country where the scheme is applied. Some examples of this include;

- The housing of animals which is more common in England than in New Zealand and Australia where beef and sheep are almost never housed, in contrast to England where in some areas cattle can be housed for their entire lives, and sheep housed over the winter period.
- Transport of animals is relevant to all 3 countries but the potential impact on animal welfare is greater in Australia due to the distances and more extreme climatic conditions.

The country weightings are shown in the table below:

Table 1. Country weightings adapted

Heading	England Weighting	Australia Weighting	New Zealand Weighting
Traceability, documentation and assurance	100	100	100
Personnel	100	100	100
Food safety	100	100	100
Housing and shelter	100	50	50
Feed and water	100	100	100
Husbandry procedures	100	100	100
Youngstock management	100	100	100
Animal health and welfare	100	100	100
Animal medicines	100	85	85
Biosecurity and disease control	100	90	100
Livestock transport	100	160	100
Vermin control	100	70	50
Fallen stock	100	70	90
Environmental protection	100	100	100

Application of category weightings

Each of the fourteen analysis categories were also awarded a weighting which reflected its relative importance within the scheme. These weightings are shown below, and it can be seen, for example, that food safety is awarded much higher rating than vermin control or personnel. We acknowledge that there will be debate around these weightings and recognise that they are subjective, but in the opinion of the experts who created this study and those who peer reviewed it, they are reasonable reflections of the importance of each category from a farm assurance perspective.

Table 2 Category weightings for each farm assurance category

Heading	Relative Weighting
Traceability, documentation and assurance	200
Personnel	110
Food safety	200
Housing and shelter	120
Feed and water	150
Husbandry procedures	150
Youngstock management	105
Animal health and welfare	150
Animal medicines	150
Biosecurity and disease control	150
Livestock transport	95
Vermin control	70
Fallen stock	70
Environmental protection	150

Worked Example

The following example uses illustrative data for the Housing and Shelter category to demonstrate how the weightings were applied within the scoring.

Stage 1: Within category weightings

The first application of weightings is made within each individual category. Each question has been awarded a weighting to reflect its importance against the other questions in that category. The raw score for each question (Column A) is multiplied by the question weighting (Column B) to give the weighted actual score for each question (Column C). A maximum potential score for each question is also calculated at this point (Column D).

Table 3. Category weightings for each farm assurance category

		Column A	Column B	Column C	Column D
Housing and Shelter Questions		Question Raw Score	Question Weighting	Weighted Actual Score	Weighted Maximum Potential Score
A	Is housing well-designed and safe?	8.5	10	85	100
B	Does housing promote high welfare?	6.5	10	65	100
C	Is housing hygienic?	5	10	50	100
D	Is there adequate ventilation?	8	10	80	100
E	Is housing well-lit?	7	8	56	80
F	Is housing structurally sound?	8	10	80	100
G	Is there adequate space available for each animal?	7	10	70	100
H	Are loading and unloading facilities available and to a good standard?	8	7	56	70
I	Are there appropriate isolation and birthing facilities?	8	9	72	90
J	Is housing appropriate and safe for stock managers?	7	10	70	100
K	Do animals outside have access to appropriate shelter?	10	6	60	60
L	Are animals kept outside kept in appropriate conditions, including well drained lying areas and the absence of severe poaching?	10	10	100	100
M	Are bedding requirements appropriate?	5	10	50	100
N	Are requirements for records appropriate?	8	10	80	100
Total Within Category Weighted Score for Category				974	1300

Stage 2: Between country weightings

Country weightings have been applied to the maximum potential score (Column F multiplied by Column G) for each category. This weighting adjusted the maximum potential score up or down, or left is as it was, depending on whether the weighting was above 100, below 100 or equal to 100. This meant that the final percentage calculated score rose for those countries in which the category was agreed to be less important, and fell where it was deemed to be more important. The final percentage score was calculated by dividing Column E by Column H.

Table 4. Country weightings for each farm assurance category

	Column E	Column F	Column G	Column H	Column I
Housing and Shelter	Weighted Within Category Score	Country Weighting	Maximum potential category score	Corrected maximum potential score for each country (F x G)	Calculated percentage score (E/G)*100
Country 1 scheme	974	100	1300	1300	74.9%
Country 2 scheme	433	50	1300	650	66.6%
Country 3 scheme	302	25	1300	325	92.9%

Stage 3: Between category weightings

The final stage of weightings is applied between categories, and is delivered by multiplying the previously calculated 'within category and between country' weighted score (Column J) by the between category weighting (Column L), giving a fully weighted score for each scheme for each category (Column M).

At the same time the maximum potential fully weighted score for each category is calculated by multiplying the previously calculated 'within category and between country weighted maximum potential score' (Column K) by the category weighting (Column L).

The calculations of the actual fully weighted score and the maximum potential fully weighted score allows the calculation of the scheme's actual performance as a percentage of the potential maximum, which has been rounded to the nearest figure. (Column O).

Table 5. Calculations of the fully weighted score

Category	Column J	Column K	Column L	Column M	Column N	Column O
	Weighted score within Category and between Country	Maximum Potential weighted score for each scheme within Category and between Country	Between Category Weighting	Category, Country and within Category Weighted Score	Maximum potential Category, Country and within Category Weighted Score	Category Score as a percentage of the total potential maximum
Food safety			200			
Housing & shelter	97,400	130,000	120	11,688,000	15,600,000	75%
Feed and water			150			

Scoring as a percentage of total maximum possible weighted score

The final reported scores from each scheme are presented as a percentage of the maximum possible weighted score. It was necessary to use percentages because in many sections the maximum total raw or weighted potential score for each of the three schemes differed from one another within each category, and thus a raw score was not reflective of the actual performance of the scheme.

Using percentages allowed the relative importance of the factors within each scheme to be accounted for and to be reflected fairly in the final overall scores which each scheme received.

Reflecting where specific practices or categories are not as important within a country

It should be noted that the within category scores shown in the spider diagram are raw scores. If the scheme does not answer a particular question either comprehensively or at all, the score will be low. If, however, that question is less relevant to that country, the weightings will account for this by reducing the maximum possible score from which the percentages are calculated.

Thus, in each of the performance categories represented below, the table which follows the spider diagram shows the final weighted percentage scores for each scheme, whilst the spider diagrams show the raw score for each question. The spider diagram score does not have either the between country or between category weightings applied, and in some instances, a scheme may score zero for a particular question. Where the subject of that question is less important within a specific country, the country weightings which are applied will correct for this. Therefore, the spider diagrams are simply guides for scheme developers as to where a scheme has or has not addressed a specific question, and the final percentage scores in the table are those which should be used to gain an understanding of how effectively the assurance scheme minimises risk within that investigative category.

Findings from the analysis

Traceability, documentation and assurance

The traceability, documentation and assurance category was included as this is the single most important component of any assurance scheme. An effective farm assurance scheme must inspect and record against a clearly defined set of standards and must, to a high degree of confidence, be able to assure that the livestock products which are eventually sold can be traced back to the farm from which it originated. To this end, the basic scheme standards must be robust, and the documentation created by the scheme detailed and specific enough to allow the user to be confident that the scheme delivers against its stated aims.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the Traceability, Documentation and Assurance category;

- A. Are cattle individually identified on the farm of origin?
- B. Are sheep individually identified on the farm of origin and linked to a dam?
- C. Is tagging/identification required close to time of birth for cattle?
- D. Is tagging/identification required close to time of birth for sheep?
- E. Is there a central database recording all farm movements?
- F. Do cattle movements have to be individually reported to a central database within an acceptable timeframe? (inside 3 days)
- G. Do sheep movements have to be individually reported to a central database within an acceptable timeframe? (inside 3 days)
- H. Is a Food Chain Information declaration (or equivalent) required to travel with animals which are being transported to slaughter?
- I. Is the traceability system robust (Cattle)?
- J. Is the traceability system robust (Sheep)?
- K. Audit frequency?
- L. Auditor training and standardisation?
- M. Are cattle assured from birth?
- N. Are sheep assured from birth?
- O. Are the certification bodies required to be accredited to ISO17065, with the specific standard within their scope?
- P. Do assured animals need to be transported by assured transporters to retain their approval status?

Figure 2. Raw scores for each question area for the traceability, documentation and assurance category

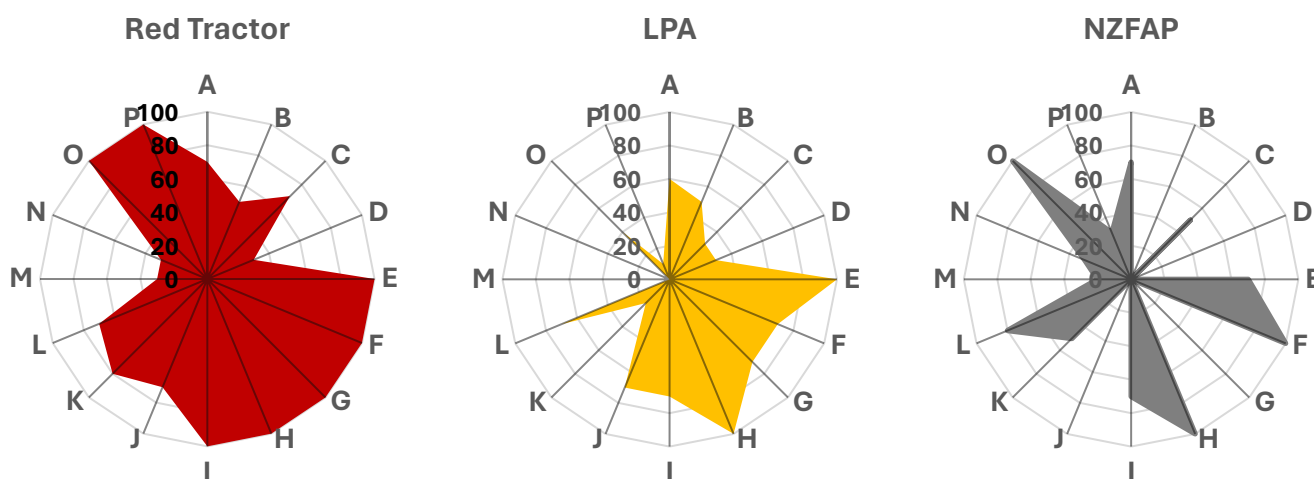


Table 6. Scores for the traceability, documentation and assurance category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	120/160	77%
Livestock Production Assurance	79/160	54%
NZFAP	77/160	51%

Summary of findings

Within this category, the Red Tractor scheme received a score which was higher than the LPA and NZFAP schemes. Much of the traceability element of the schemes for this category is required by their respective country's legislation, and the documentation requirements and scheme rules are independent of legislation.

Only the Red Tractor scheme requires assured transport, although the NZFAP scheme does set an expectation for livestock transport crates to be inspected at abattoir. None of the schemes require whole life assurance. LPA does not discuss the required residency period, whereas the Red Tractor and NZFAP schemes only require assurance for a very short proportion of the animal's life.

Red Tractor

Unlike cattle, Red Tractor does not require sheep to be registered to a dam and are only tagged either within 6 months of birth if housed overnight, within 9 months if not housed, or when moved off the holding. Red Tractor requires assured transport and robust traceability, due mainly to legislation. The fact that sheep traceability is not completely electronic in England has lowered its overall score.

Livestock Production Assurance

There is a significant concern over the robustness of audit of the LPA scheme and its effect on this category. Only 3,000 audits are conducted per year, and two thirds of these are drawn at random from all members of the scheme. Consequently, many years may elapse between audits, meaning that this scheme appears not to be robust. As LPA do not currently publish information on the number of farms in the scheme or the audit interval, it is difficult to ascertain the level of inspections in comparison to other schemes in this study.

The LPA scheme is not externally approved to the same standards as the Red Tractor and NZFAP schemes. The latter schemes are assured to the ISO17065 standards, whereas LPA is not. ISO standards are internationally agreed by experts, and are essentially a formula that describes the best way of delivering a specific task or programme. directly focuses on the competency of bodies performing certification of products, processes, services and systems.

As LPA do not publish the numbers and proportion of farms that fail inspection, it is difficult to determine how effective the scheme is. However, it is noticeable that Red Tractor failed the same number of farms of all types in 2020 as LPA audit each year.

NZFAP

There is no requirement for individual identification of sheep and lambs in New Zealand and the NZFAP scheme does not require this either. There is central recording of sheep movements in New Zealand, but this is partially dependent on the submission of paper records. An animal status declaration (ASD) must accompany all stock movements. This system allows mob-based traceability between farms, saleyards and slaughterhouses but the fact that it allows paper-based submissions lowers the speed and level of traceability in New Zealand below that provided by Red Tractor in England or LPA in Australia. It is acknowledged that New Zealand is rolling out electronic ASDs and is encouraging farmers to move online to report movements, but this is not compulsory. The lack of individual sheep ID in New Zealand results in a lower score because it does not allow for the tracking of individual livestock as in the other schemes.

Legislative Requirements

England

Red Tractor requirements are based on a number of regulations within England governing traceability of livestock. These include Cattle identification Regulations 2015 (CIR), EC Hygiene Regulations and the SAGRIMO Order enforcing the Council Regulation (EC) 21/2004.

Under these regulations, powers are given to the competent authorities and specify requirements for keepers with respect to notification of holdings, ear tags, registration of cattle, cattle passports, notification of movements or death, and record keeping. The key requirement for traceability is the requirement to tag individual animals.

Australia

As with Red Tractor, LPA's identification requirements are fully based on legislative requirements. State and territory governments each have a role in controlling stock disease and residues under various state or territory Biosecurity Acts or related legislation and operates the National Livestock Identification System (NLIS).

NLIS is the Australian system of the permanent identification and lifetime traceability of livestock, working to identify the physical location of animals using a property identification code (PIC), ensuring the use of animal identifiers (visual or electronic tag or brand) and the use of a web-based database for the correlation and storage of this information.

New Zealand

As with the other schemes, NZFAP's identification requirements are fully based on legislative requirements, which comes under the National Animal Identification and Tracing Act 2012. The act established the National Animal Identification and Tracing programme (NAIT) which tracks individual or groups of specific animals from birth to death and provides information on their location and movement history. The act only applies to cattle and deer, although it is important to note that the NAIT system was designed to allow for the traceability of other livestock, if and when required.

Personnel

The personnel category has been designed to test the assurance which the schemes provide around the welfare of those who access and work on farms. This concept includes the safety of staff as they work on the farm, the induction and training that is required, the qualifications which are necessary for a person to work on the unit, the ways in which competency and training needs are assessed, and the continuous professional development that takes place on the farm.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the Personnel category;

- A. What qualifications are required for farm staff?
- B. Is staff induction required?
- C. Is staff training required?
- D. What training records are required?
- E. What topics are covered in training and do these meet the needs of the farm staff appropriately?
- F. How often is training required?
- G. Are appropriate Health and Safety policies required?
- H. Is the performance of employees reviewed regularly and appropriate training given if required?
- I. Is labour provision from external providers adequately covered?

Figure 3. Raw scores for each question area for the personnel category

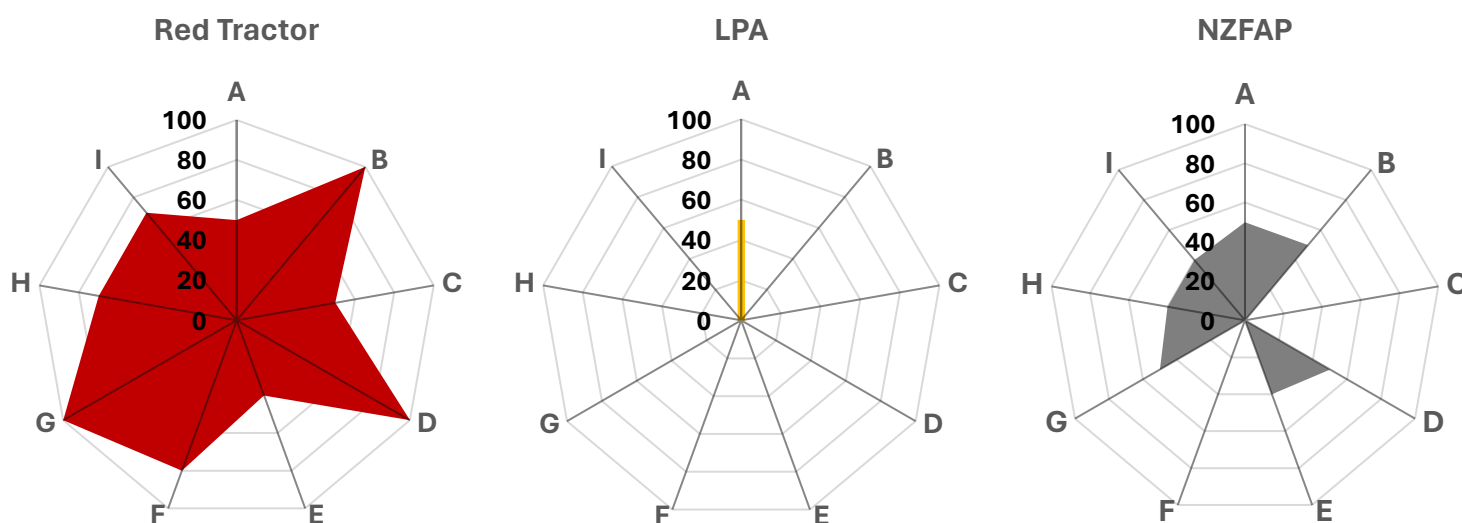


Table 7. Scores for the personnel category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	66/90	72%
Livestock Production Assurance	5/90	6%
NZFAP	32/90	35%

Summary of findings

Although Red Tractor is the highest scoring scheme in this area, none of the three schemes received full scores with regard to the employment, management and training of personnel.

All schemes require competency from staff, but do not promote activity to continuously improve knowledge of best practice as well as to develop the personal skills leading to improved job satisfaction, job performance and safety. Red Tractor comes closest by requiring regular assessment of staff competency (without giving a great deal of explanation about how this should be done), and by requiring that training is provided where performance is below that expected. Training records are required, but assessment records are not specified (although this is implicit). Neither LPA or NZFAP require this level of supervision and training.

Key points

Red Tractor

Red Tractor does not generally require specific qualifications for farm staff, although all staff are required to be competent.

Staff training is required for certain, specified activities, but to score higher, the activity list should be expanded to include activities like stock management, animal welfare, record keeping, health and biosecurity management as well as the more obvious chemical handling, health and safety etc. All key tasks should be specified and the minimum level of training/qualifications indicated.

It is appreciated that Red Tractor has to walk a fine line between continuously developing the standards and remaining acceptable to UK farmers, but as a number of experts have pointed out, just because someone has many years of experience of the delivery of a task does not mean that they are delivering it correctly, and that in an ideal world all farmers would have qualifications which cover all tasks which they are delivering.

Regardless of these concerns, Red Tractor scores above the standards of the other schemes in this category.

Livestock Production Assurance

LPA does not require specific qualifications for all activities, although it does require animal welfare training for the senior person responsible for animal care. It also requires competency from staff. It would score higher if farm staff were required to attend continuous professional development courses for all key activities on farm. In contrast to Red Tractor, LPA does not consider the welfare of farm workers. LPA does not require regular review of staff performance, but does require any training that is undertaken to be recorded.

Overall, the LPA scheme has significant gaps in the personnel category and essentially offers little to no reassurance to the customer. There may be arguments that they focus mainly on the animal, but assurance is expected around the health and safety performance and welfare of staff on farm businesses as well and LPA does not offer this in the personnel category.

NZFAP

Like Red Tractor, NZFAP does not require specific qualifications for farm staff, although all staff are required to be competent. We recognise that it is not practical for all staff to obtain professional qualifications (although this would be ideal), but to obtain a higher score, the standard would have needed to contain more requirements around ongoing professional development.

Again, like Red Tractor, staff training is required for certain, specified activities, but expanding the activity list to include activities like stock management, animal welfare, record keeping, health and biosecurity management as well as the more obvious chemical handling, health and safety etc would gain it a better overall score.

Legislative Requirements

Within each region, a high proportion of legislation governs employment. This is primarily framed as employment law. The regulations in all three countries cover employment contracts and health and safety at work. The regulations only cover appropriate induction and training from a human safety perspective, they do not cover competency for the tasks they are required to deliver, with the exception of the use of potentially dangerous chemicals. However, the legislation is not farm focused and instead gives guidelines for wider industry.

Within this category it can be seen that the LPA and NZFAP schemes broadly stick to the legal minimum required in each country, whereas the Red Tractor scheme provides a higher level of guidance for farm managers, mainly around training requirements.

England

The Management of Health and Safety at Work Regulations 1999 require that all employers or the self-employed assess their own risk, and the risk to anyone working for them regarding their working environment. The Health and Safety Executive issued the following guidance for farms:

- be certain that all buildings are kept in good repair and that floors are not overloaded, especially in feed lofts
- provide handrails on stairs and ramps where needed
- make sure there are safety hoops or rest stages on long vertical fixed ladders
- keep all workshops tidy
- equip inspection pits with accessible escape routes and cover pits when not in use
- provide adequate lighting and replace any old lights
- ensure there is good drainage and non-slip flooring for wet areas

Broadly the Red Tractor scheme assesses against legal requirements, but its requirements around training and induction are above legal requirements, as is the requirement to regularly assess employee performance and provide refresher training.

Australia

On-farm employment is governed by the 'Safe Work Australia' (SWA) policy, which is also responsible for the development and evaluation of the model Work Health and Safety (WHS) laws which have been implemented in all jurisdictions except Victoria.

Under WHS legislation, businesses must put health and safety practices in place, including providing a safe work environment; providing and maintaining safe machinery and structures; providing safe ways of working; ensuring the safe use, handling and storage of machinery, structures and substances; providing and maintaining adequate facilities; providing any information, training, instruction or supervision needed for safety; and monitoring the health of workers and conditions at the workplace.

New Zealand

The Health and Safety in Employment Act 1992 aims to 'promote the prevention of harm to all people at work, and others in, or in the vicinity of, places of work'. It applies to all workplaces in New Zealand. Employers must take practical steps to provide a safe work environment, involve employees in health and safety procedures, and identify and control significant hazards. This applies to farms as well as other businesses.

Food safety

The Food Safety section was created to test the effectiveness of each assurance scheme in ensuring that food sourced from livestock produced under their schemes are free from contamination by chemicals, tainted food, or physical contaminants such as broken needles. A further requirement is that the food produced from each unit can be traced if a problem is discovered.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the Food Safety category:

- Does the scheme require actions which manage vermin infestation on the farm?
- Does the scheme require activity to prevent chemical contamination of food?
- Does the scheme require activity to prevent contamination of food with medicines?
- Does the scheme require activity to ensure that broken needles or other physical contaminants do not reach the food chain?
- Does the scheme restrict food types which can be offered to ruminants in order to prevent prion diseases?
- Does the scheme require dietary restriction of sheep prior to slaughter to prevent contamination during the slaughter and processing process?¹¹
- Is animal traceability robust (cattle)?
- Is animal traceability robust (sheep)?
- Is the assurance scheme robust and trustworthy, with adequate audit independence and frequency?

Figure 4. Raw scores for each question area for the food safety category

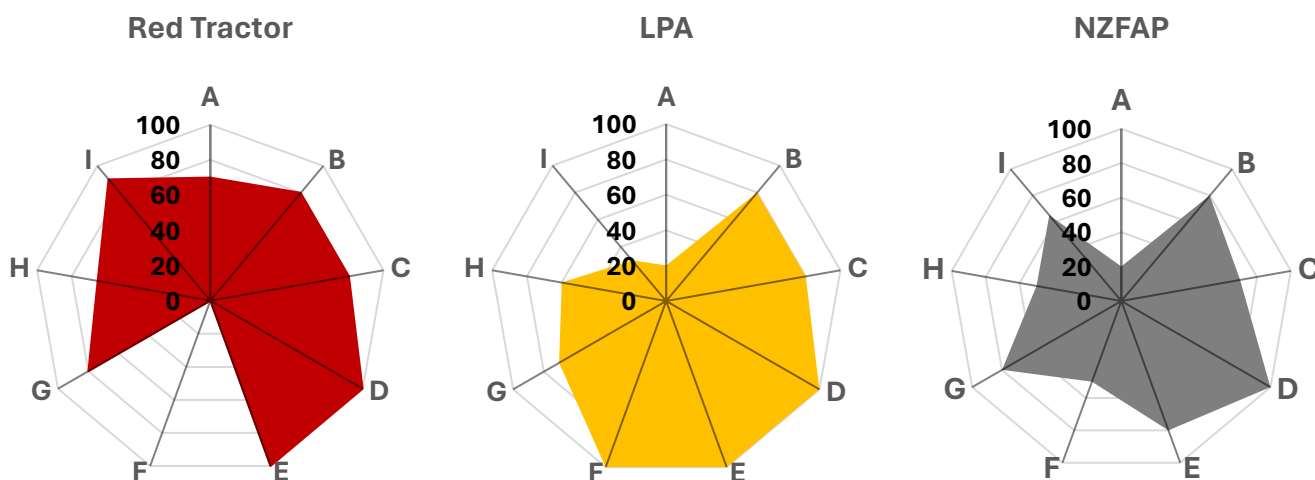


Table 8. Scores for the food safety category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	66.5/90	77%
Livestock Production Assurance	64/90	70%
NZFAP	59.5/90	67%

¹¹ The restriction of access to food for sheep prior to slaughter is important because sheep or lambs which are processed with full bellies of grass or forage present increased risk of contamination of meat as the carcass is disassembled.

Summary of findings

All the schemes in this study were established to promote and guarantee food safety and to protect the reputation of the industry. As a consequence, all schemes score relatively well in this area.

Key points

Red Tractor

Red Tractor does not specify a feed withdrawal period for sheep prior to slaughter, and this does increase the potential for contamination of lamb carcasses after slaughter due to bursting of full bellies and the distribution of rumen contents over the carcass.

Livestock Production Assurance

LPA do not state their audit frequency, nor a maximum interval of audits and therefore received a lower score because of this. Audits are selected at random from the database of all LPA accredited producers (including producers with just a few livestock), with approximately 2,000 random audits conducted each year along with 1,000 selected for targeted audits due to system identified non-conformance.

NZFAP

NZFAP audits are conducted on a 36-month cycle however, it does state that processors may require more frequent audits to meet their specific customer programmes. This is still a weaker level of audit than Red Tractor, and does run the risk of the dilution of standards between audits due to the amount of time between one and the next.

Legislative Requirements

For each country in this study, there is relatively little information on the control of food safety at farm level in any of the food safety legislation, as this is primarily focused on fresh food at the consumption ready stage. The main legislation which is applicable at farm level in each country is the legislation which controls medicine usage and chemical/pesticide usage to avoid contamination of meat with medicines or other chemicals.

England

Within the England, food safety is governed by the Food Standards Agency, established by the Food Safety Act 1990 which also provides the framework for all food legislation in England, Wales and Scotland. Traceability is governed by Article 18 of Regulation (EC) No. 1978/2002 and establishes the need and requirements for traceability at all stages of production, processing and distribution.

Food Standards Australia and New Zealand (FSANZ)

The Food Standards Australia New Zealand (FSANZ) is responsible for regulating the Australian and New Zealand Food Standards Code, the over-arching standard for food safety in the region. The code, which is governed by state and territory departments is split into four sections: introduction to standards that apply to all food, food standards, food safety standards, primary production standards.

The Primary Production and Processing (PPP) Standards (Chapter 5) section for meat and meat products (4.2.3) recognises that existing state and territory laws already cover requirements relating to inputs (e.g. animal feed and water), traceability and processing of meat, meat products and wild game. If there is a food incident, this standard allows for regulators to investigate food safety matters through the entire meat supply chain. The standard was developed by combining proposals for major meat species (P1005) and minor meat species (P1014) into a single proposal (P1014).

Housing and shelter

The housing and shelter section has been designed to ensure that animals produced under each assurance scheme has accommodation which is appropriate to their needs. This includes housing and the provision of appropriate shelter when animals are outside. Housing is proportionally more relevant in England than in New Zealand or Australia, but the provision of external shelter is more relevant in New Zealand and, particularly, Australia.

The importance of housing and the provision of shelter is a component of assurance which is growing in importance. Climate change has increased the regularity of extreme weather events in all parts of the world. Within this section, housing design and management is particularly important within England due to the amount of time which animals can be housed for, and the ability of climatic conditions to create heat stress or pneumonias where ventilation (for example), is not appropriate. In contrast, housing is not frequently used in New Zealand or Australia, but climate extremities, particularly in Australia can create heat or flood conditions which impact the welfare of livestock severely at grazing (or in feedlot), and the provision of shelter or refuge is consequently important.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the Housing and Shelter category:

- A. Is housing well-designed and safe?
- B. Does housing promote high welfare?
- C. Is housing hygienic?
- D. Is there adequate ventilation?
- E. Is housing well-lit?
- F. Is housing structurally sound?
- G. Is there adequate space available for each animal?
- H. Are loading and unloading facilities available and to a good standard?
- I. Are there appropriate isolation and birthing facilities?
- J. Is housing appropriate and safe for stock managers?
- K. Do animals outside have access to appropriate shelter?
- L. Are animals kept outside kept in appropriate conditions, including well drained lying areas and the absence of severe poaching?
- M. Are bedding requirements appropriate?
- N. Are the requirements for records appropriate?

Figure 5. Raw scores for each question area for the housing and shelter category

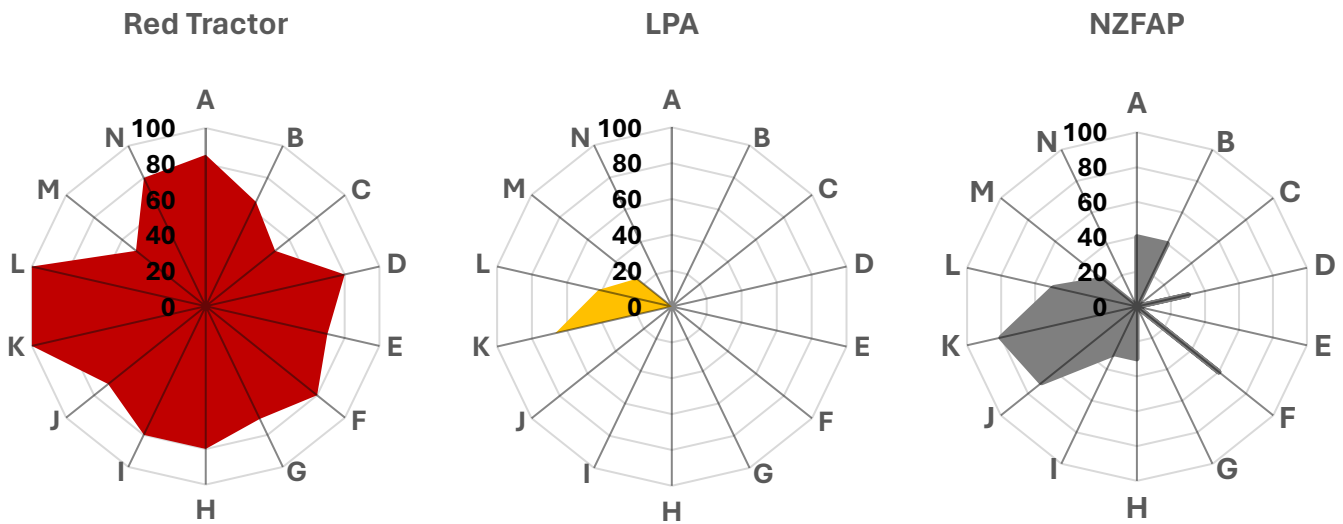


Table 9. Scores for the housing and shelter category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	106/140	75%
Livestock Production Assurance	15/140	16%
NZFAP	48/140	63%

Summary of findings

Red Tractor

The Red Tractor scheme scored higher than others in regard to housing. As animals can be housed for their entire lives in England, its standard requires more detail. However, this section also considers shelter for animals and the provision of shelter from extreme weather is more important in New Zealand, and particularly Australia where temperatures regularly reach in excess of 40 degrees Celsius.

The Red Tractor scheme is generally comprehensive and scores well, although requirements around the promotion of welfare, hygiene control and bedding could be more specific. Red Tractor also requires that shelter such as hedges, trees, well-drained areas etc. are available for animals outside.

Livestock Production Assurance

LPA does not contain any requirements around housing. It does, however, state that, 'if practical' shelter should be provided for animals, which is not robust. However, farmers are required to have a heat load programme in place and feed yards must drain freely.

In Australia, housing of cattle and sheep is very rare, and as a result the LPA scheme contains fewer assurance requirements than Red Tractor, which covers a region which frequently houses livestock.

NZFAP

NZFAP contains relatively limited requirements around housing, which it requires to be constructed and maintained in such a way that minimises distress or injury to livestock or humans. It also requires that animals have access to shelter to reduce cold exposure or heat stress.

Due to the farming systems in place in New Zealand, housing of livestock is much less frequent than in England. As livestock housing is less common, the NZFAP scheme contains fewer assurance requirements on this topic.

Key points

Red Tractor

Under Red Tractor, there are fewer gaps than the other schemes. However, from a welfare perspective, bedding is not required for livestock, and it is permissible for animals to lie on solid concrete or slatted floors - essentially, the Red Tractor standard requires only that the basic needs of the animals are met. Finally, the Red Tractor requirements around housing hygiene are not specific enough. For example, there is a requirement for having access to the correct cleaning chemicals, but no specifications around when, and under what conditions they should be used.

Livestock Production Assurance

In Australia, cattle are often finished in feedlots, where they are not housed, but are confined within outside pens for the last few months of the finishing period. The LPA standard does not require even basic standards around housing, or more appropriately, detailed requirements around confining animals in outside pens, such as having well-constructed facilities, free from elements that could cause injury and which are designed to promote the display of natural behaviours. This would have application to feedlots in Australia which are used to finish large volumes of animals, but it is not considered within the LPA standard.

Some aspects of shelter are covered by the LPA standards, but these are not comprehensive and can mean that animals can be exposed to strong sunlight for extended periods of time.

NZFAP

Although more comprehensive than its Australian counterpart, there are still gaps in the NZFAP Standard. The standard specifies some basic design requirements for housing, but does not consider ventilation, lighting or hygiene. The standard does not require the availability of a well drained outside lying area for livestock, wherever they are.

Legislative Requirements

Housing is subject to legislation but is primarily governed by the broader animal welfare regulation in most regions. Both England and New Zealand are heavily dependent on welfare codes to govern what happens in each of the regions. Whilst these are not legislation, they can be used to help prosecute animal managers who permit poor welfare.

England

Within England, the Welfare of Farmed Animals (England) Regulations 2000 (S.I. 2000 No. 1870) requires that any person who employs or engages a person to attend to animals shall ensure that the person attending to the animals:

- is acquainted with the provisions of all relevant statutory welfare codes relating to the animals being attended to;
- has access to a copy of those codes while he is attending to the animals; and
- has received instruction and guidance on those codes.

The legislation states that “any person who keeps animals, or who causes or knowingly permits animals to be kept, shall not attend to them unless he has access to all relevant statutory welfare codes relating to the animals while he is attending to them, and is acquainted with the provisions of those codes”.

This has application to the housing of animals, and the legislation goes on to state that “the causing of unnecessary pain or unnecessary distress to any livestock on agricultural land is an offence under Section 1(1) of the Agriculture (Miscellaneous Provisions) Act 1968. The breach of a code provision whilst not an offence in itself, can nevertheless be used in evidence as tending to establish the guilt of anyone accused of causing unnecessary pain or distress under the Act (Section 3(4)).”

Consequently, animal housing in England must be appropriate and must not cause discomfort or pain, but the legislation is non-specific and each incident would be treated on a case by case basis.

Australia

The ‘Australian Animal Welfare Standards and Guidelines¹²’ is part of the Australian Animal Welfare Strategy (AAWS), with the standards providing a basis for developing and implementing consistent legislation across Australia. The standards apply to all those responsible for the care and management of cattle, and are designed to be considered in conjunction with other requirements and legislation including ‘Australian Standards for the Export of Livestock.’ Each of the states in Australia has or is in the process of encapsulating this guidance within their own legislation, meaning that the legislation across Australia will be broadly consistent. The standards in the legislation are detailed and include requirements around feed and water, facilities, handling, risk management, castration and dehorning, breeding, calf rearing, feedlots and euthanasia. The requirements for use of pain relief are not stringent, permitting many procedures to take place without pain relief up to the age of 12 months (under certain conditions).

It could be argued that the LPA standard falls short of the above Australian legislation. Point (d) above states that each animal is to be protected from extreme climatic and environmental conditions, but this is reinterpreted in the LPA, addition the phrase ‘where practical’ which allows considerable room for interpretation. However, as each farm is legally required to follow the legislation, this is less of a concern.

New Zealand

The Animal Welfare Act 1999 governs animal welfare in New Zealand. The Act sets out the obligations of animal owners or people in charge of animals. They must meet an animal’s physical, health, and behavioural needs, and must alleviate pain or distress. The Act defines ‘physical, health, and behavioural needs’ as:

- proper and sufficient food and water
- adequate shelter
- the opportunity to display normal patterns of behaviour
- appropriate physical handling
- protection from, and rapid diagnosis of, injury and disease.

New Zealand, like England uses codes of practice to guide farmers on activity and conditions at farm level. The codes of practice are not legislation but will be used in prosecutions where farmers fail to meet appropriate conditions. Animal housing will be guided by this, and will be assessed against the five points highlighted in the previous paragraph.

¹² Animal Health Australia

Feed and water

The feed and water category questions are designed to test if the assurance scheme can ensure that cattle and sheep have ready access to appropriate, clean, fresh feed and water, and that the nutritional needs of the animal are fully met.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the Feed and Water category:

- Do animals have enough feed and water to maintain normal bodily function?
- Do animals have easy ready access to fresh, clean water?
- Is the feed offered to animals appropriate?
- Are the feed storage requirements appropriate?
- Are growth promoting hormones permitted?
- Are any types of feed prohibited?
- Are systems and records in place to prevent livestock being contaminated via feed?
- Do young animals receive enough colostrum?
- Is feeding equipment checked regularly and maintained?

Figure 6. Raw scores for each question area for the feed and water category

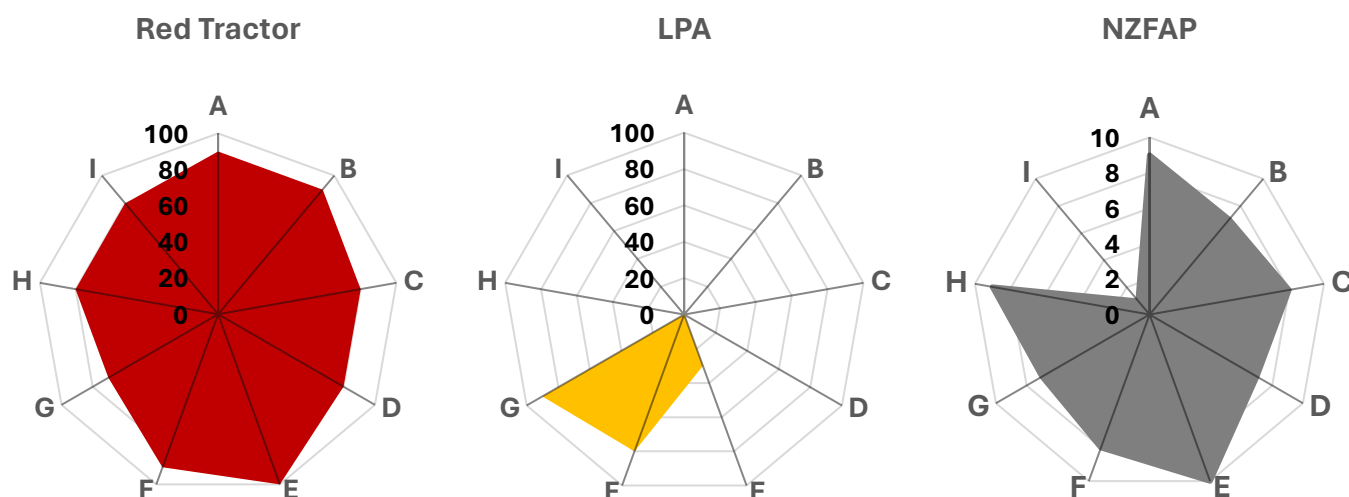


Table 10. Scores for the feed and water category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	76/90	85%
Livestock Production Assurance	20/90	22%
NZFAP	66/90	76%

Summary of findings

The Red Tractor and NZFAP schemes scored well, with their scores being relatively equal apart from the requirements to check and maintain equipment. The LPA scheme scored much lower, with significant gaps around ensuring the adequate provision of food and water.

Key points

Red Tractor

Although Red Tractor did not justify a full score, there were no significant gaps and the scheme does ensure that animals receive an appropriate diet and that they have access to enough water.

Livestock Production Assurance

There are numerous gaps within the LPA requirements within this category, which is why it received lower scores in comparison to the other schemes. LPA does not comment in any depth on feed and water, other than to prohibit the feeding of restricted animal material to ruminants, instead relying on producers to follow the Australian welfare guidelines which are not checked at audit. LPA also does not comment on feed storage, or have any requirements to regular equipment checks and maintenance.

The LPA scheme also permits the use of hormonal growth promoters, and whilst there is no scientific evidence that there is either a food safety or animal safety risk, European consumers are unlikely to accept this. LPA does require that hormone treated animals are individually identified.

NZFAP

Like Red Tractor, there are few gaps in NZFAP for this category. The only notable gap was that there are no specific requirements around the checking and maintenance of feeding equipment.

Legislative Requirements

As for many of the other categories, the feeding of animals falls under general animal welfare legislation, and also the interpretation of the farm manager and those who enforce the legislation.

England

The legislation governing the provision of food and water is the Animal Welfare Act 2006. It requires that animals must have a suitable diet (which includes access to water). The codes of practice for cattle and sheep cover what constitutes a suitable diet in extensive detail. The majority of the Red Tractor standard in this case is therefore essentially a less detailed repeat of the Cattle and Sheep codes of practice. Feed storage *per se* is not generally covered in the legislation, but falls under the concept of clean, fresh and appropriate food. Hormone growth promoters are not permitted.

Australia

The 'Australian Animal Welfare Standards and Guidelines'¹³ provides guidance for each of the states in Australia which have already or are in the process of encapsulating this guidance within their own legislation, meaning that the legislation across Australia will be broadly consistent. There are a number of standards in relation to feed and water which all farms must follow, as well as guidelines which detail more specific recommendations that farms are not legally bound to follow. There must be a person in charge who ensures that cattle/sheep have reasonable access to adequate and appropriate feed and water. They must ensure that the diet composition and quantities fed are recorded, and that records are maintained for the duration of the feeding period of each group of cattle¹⁴.

Australian federal legislation permits the use of hormonal growth promoters (HGP) within the country, but some Australian states ban their use. The regulation of HGPs is carried out by the Australian Pesticides & Veterinary Medicines Authority.

¹³ Animal Health Australia

¹⁴ Beef feedlots only

New Zealand

New Zealand again manage animal feeding through general legislation and through the use of codes of practice. The relevant beef and sheep code states the following;

(a) All animals must receive sufficient quantities of food and nutrients to enable them to:

- maintain good health
- meet their physiological requirements
- minimise metabolic and nutritional disorders

(b) All sheep and beef cattle must have access to water, sufficient for their daily needs and that is not harmful to their health.

(c) If any beef animal shows signs of being very thin, or if the body condition score of any individual beef animal falls to 1 (on a scale of 0-5), urgent remedial action must be taken to improve condition or the animal must be destroyed humanely.

(d) If any sheep shows signs of being very thin, or if the body condition score of any sheep falls to 1 (on a scale of 0-5), urgent remedial action must be taken to improve condition or the animal must be destroyed humanely.

Whilst this is not legislative, the codes can be and are used to prosecute animal managers when problems are found and can essentially be considered as legislative. As for the other jurisdictions, feed storage *per se* is not generally covered in the legislation, but falls under the concept of clean, fresh and appropriate food.

As for Australia, New Zealand legislation permits the use of hormonal growth promoters, but the NZFAP scheme rules their use out.

Husbandry procedures

The husbandry procedures section is designed to identify what procedures are permitted under each scheme, the measures which are taken to protect animal welfare during the procedures.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the Husbandry category:

- A. Is castration permitted?
- B. What age is castration permitted up to without anaesthetic and by what means?
- C. What age is castration permitted to with anaesthetic and by what means?
- D. Is disbudding permitted?
- E. What methods of disbudding are permitted? Is anaesthetic required?
- F. What methods of dehorning are permitted? Is anaesthetic required?
- G. Is branding permitted? If so, hot branding, freeze branding or both?
- H. Is tail docking permitted? If so, what rules govern this?
- I. What other miscellaneous procedures are permitted? Are they acceptable?
- J. Is mulesing permitted?
- K. Who is permitted to carry out each procedure, and what qualifications are required?

Figure 7. Raw scores for each question area for the husbandry procedures category

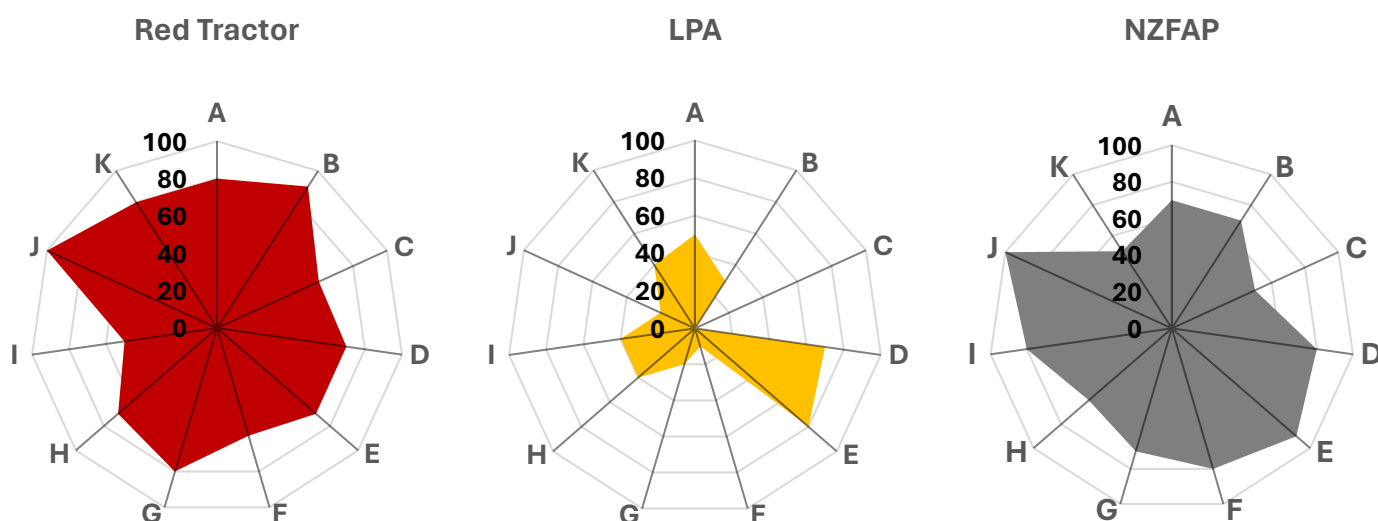


Table 11. Scores for the husbandry procedures category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	81/110	74%
Livestock Production Assurance	40/110	36%
NZFAP	80/110	73%

Summary of findings

The Red Tractor and NZFAP schemes scored reasonably well in this section. It is acknowledged that there can be some controversy over the use of what would be termed mutilations such as horn removal, disbudding or

tail docking but it is recognised that there are welfare arguments for the use of these procedures. Research indicates that the use of anaesthesia and pain relief is beneficial for animals undergoing such painful procedures. It is likely that schemes will increasingly require pain relief for such procedures at earlier ages, as animal welfare becomes increasingly important and recognised.

The LPA scheme is freer in the activities it permits (e.g. mulesing), and allows procedures without pain relief up to a much greater age. The LPA scheme does not provide reassurance that unnecessary pain and suffering is avoided.

Key points

Red Tractor

Although all individual areas within the category received a relatively high score, Red Tractor did not receive a perfect score in this category, as there are few gaps within the scheme.

Livestock Production Assurance

LPA has significant gaps within this category. The ages to which castration is permitted are higher than the other schemes, particularly when it is considered an anaesthetic is not always required. Procedures such as castration and dehorning are permitted up to 6 months old without anaesthetic or up to 12 months if at their first yarding¹⁵, considerably older than for the other two schemes.

Mulesing¹⁶ is permitted within the LPA scheme and whilst there is discussion that there is a need for this to occur on the grounds of animal welfare, there are some potential alternatives which should be covered first. LPA does not make suggestions about alternatives which should be considered on the basis that mulesing is such an emotive issue. LPA also permits hot branding, which is painful and is not permitted in either of the other two jurisdictions.

NZFAP

NZAP generally scores well and is very similar to Red Tractor. There are few areas of concern, such as the ages at which castration can occur without local anaesthetic or analgesia being quite high (Lambs up to 70 days, Calves up to 120 days).

Legislative Requirements

England

The Welfare of Farmed Animals (England) Regulations 2007 are made under the Animal Welfare Act 2006 and sets the minimum welfare standards for all farm animals. It covers standards for stockmanship; health, feed, water and other substances; accommodation; equipment; management; fire and other emergency precautions; pregnancy, rearing, and breeding.

Under The Protection of Animals (Anaesthetics) Act 1954, as amended, it is an offence to disbud calves or dehorn any cattle without the use of an anaesthetic other than when chemical cauterisation is used. In England, the use of a rubber ring, or other device, to restrict the flow of blood to the scrotum, is only permitted without an anaesthetic if the device is applied during the first week of life. The Protection of Animals (Anaesthetics) Act 1954 makes it an offence to remove a supernumerary teat from a calf which has reached three months of age without the use of an anaesthetic.

¹⁵ S6.2 in Australian Animal Welfare Standards and Guidelines for Cattle

¹⁶ Mulesing is the removal of strips of wool-bearing skin from around the breech of a sheep to prevent the parasitic infection flystrike. The wool around the buttocks can retain faeces and urine, which attracts flies.

Australia

The 'Australian Animal Welfare Standards and Guidelines'¹⁷ are part of the Australian Animal Welfare Strategy (AAWS), with the standards providing a basis for developing and implementing consistent legislation across Australia. The standards apply to all those responsible for the care and management of cattle, and are designed to be considered in conjunction with other requirements and legislation including 'Australian Standards for the Export of Livestock.' Each of the states in Australia has or is in the process of encapsulating this guidance within their own legislation, meaning that the legislation across Australia will be broadly consistent. The standards in the legislation are detailed and include requirements around feed and water, facilities, handling, risk management, castration and dehorning, breeding, calf rearing, feedlots and euthanasia. The requirements for use of pain relief are not stringent, permitting many procedures to take place without pain relief up to the age of 12 months (under certain conditions).

New Zealand

The Animal Welfare (Care and Procedures) Regulations 2018 cover a range of animals and situations, including farm husbandry and was designed to allow better enforcement of low to medium animal welfare offending, and clarifies who can carry out certain surgical procedures on animals, and how they should be done. If an animal's welfare is found to be seriously compromised, penalties under the Animal Welfare Act 1999 apply.

The regulations within New Zealand require pain relief to be used when castrating cattle or sheep over six months of age, or every time a rubber band is being used as a castration tool. The procedure must be carried out using appropriate equipment by a trained or experienced person, or by one who is under appropriate supervision. Tail docking of cattle is not permitted (unless it is a veterinary emergency), while tail docking of sheep is permitted to take place without pain relief under the age of six months, and is permitted with pain relief over the age of six months. Disbudding or dehorning of cattle must not take place without pain relief, and again the procedure must be carried out using appropriate equipment by a trained or experienced person, or by one who is under appropriate supervision. Hot branding and mulesing are not permitted.

¹⁷ Animal Health Australia

Youngstock management

We have included a category on youngstock management because of its critical importance to the long-term health of the animal.

It is important to note that, within this category, housing is a major focus, and this does impact the scores which NZFAP and LPA receive. In Australia and New Zealand, beef and sheep production is almost entirely outdoors, although a small amount of housed production does take place. The weightings are implemented to correct for this. However, this section also includes several questions which are not necessarily housing related.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the youngstock management category:

- A. Do animals have comfortable and safe indoor accommodation?
- B. Is there adequate fresh air?
- C. Is there adequate clean water?
- D. Is there adequate bedding?
- E. Do animals have access to appropriate amounts of feed?
- F. Is there adequate light?
- G. Is there adequate darkness?
- H. Is there an absence of unnecessary and painful husbandry procedures?
- I. Are animals able to safely and easily access feed and water?
- J. Are animals permitted to be kept on their own when very young?
- K. Are animals permitted to be kept on their own when older?
- L. Is the animal's diet nutritious and appropriate?

Figure 8. Raw scores for each question for the youngstock management category

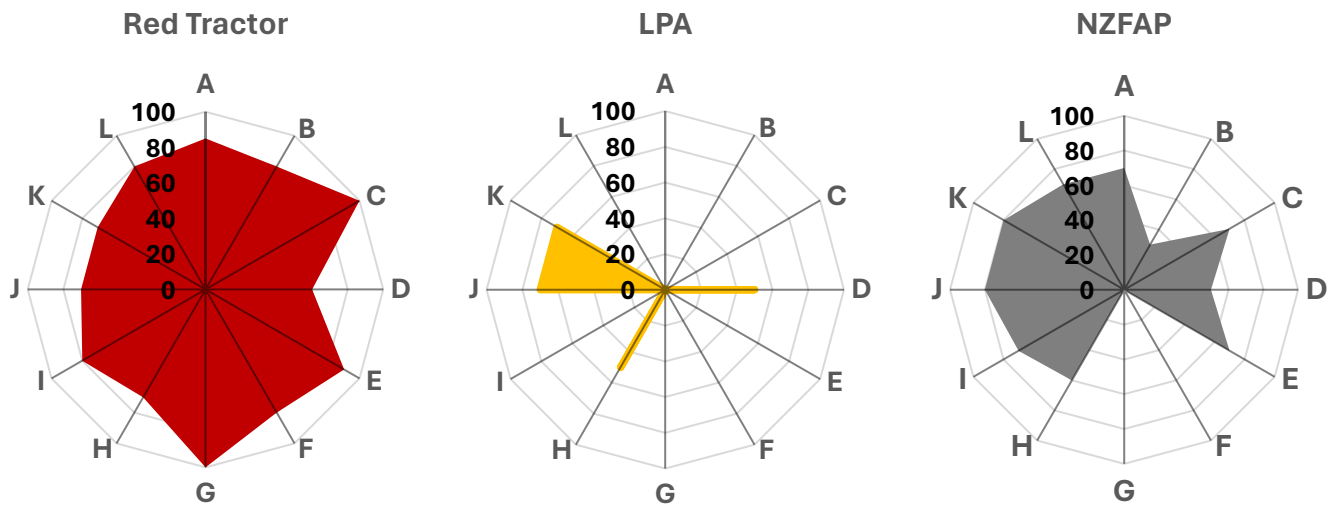


Table 12. Scores for the youngstock management category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	96.5/120	81%
Livestock Production Assurance	24/120	18%
NZFAP	65/120	55%

Summary of findings

The Red Tractor and NZFAP schemes score relatively well in this area and give confidence that farmers will consider the needs of youngstock separately from mature stock except where they are reared on farms where assurance criteria may not be met. The LPA scheme does not consider the needs of youngstock separately to mature stock, and whilst there is a requirement to ensure that animal welfare is maintained at all times, where are few prompts within the scheme what would encourage the farmer to ensure that youngstock get additional attention and care.

Key points

Red Tractor

Overall, Red Tractor performs well and is at least satisfactory in every factor within this category.

Livestock Production Assurance

LPA standards for youngstock has significant gaps. Although housing is less important in Australia, there are no requirements around their indoor accommodation, no commentary on access to clean, fresh water or appropriate amounts of feed, Husbandry procedures are less controlled and appropriateness of the diet is not considered. In this area, LPA standards do not provide confidence that the specific needs of young stock will be considered by the farmer.

NZFAP

NZFAP performs relatively well in this area, with its lowest raw scores coming around housing of animals, which is not frequently practiced within New Zealand. Husbandry procedures are generally well controlled. However, the scheme does not specify requirements around access to feed and water as well as provision of an optimised diet.

Legislative Requirements

In general, legislation in each jurisdiction considers the welfare of all animals, rather than that of youngstock specifically, and therefore provisions within farm assurance schemes help ensure that the proper care and attention is given to this specific category.

England

Within England, the legislation does not differentiate youngstock from mature stock in most incidences. The codes of practice for the management of cattle and sheep do describe the required nutrition for younger stock and the necessity of them receiving adequate levels of colostrum inside the first few hours of birth and appropriate ongoing nutrition.

Australia

The 'Australian Animal Welfare Standards and Guidelines'¹⁸ are part of the Australian Animal Welfare Strategy (AAWS), with the standards providing a basis for developing and implementing consistent legislation across Australia. The standards apply to all those responsible for the care and management of cattle, and are designed to be considered in conjunction with other requirements and legislation including 'Australian Standards for the Export of Livestock.' Within the standards, there are no specific provisions for youngstock other than some guidance around age for husbandry procedures.

New Zealand

The Animal Welfare (Care and Procedures) Regulations 2018 cover a range of animals and situations, including farm husbandry and was designed to allow better enforcement of low to medium animal welfare offending, and

¹⁸ Animal Health Australia

clarifies who can carry out certain surgical procedures on animals, and how they should be done. If an animal's welfare is found to be seriously compromised, penalties under the Animal Welfare Act 1999 apply.

While there are not many regulations contained within the legislation regarding lambs, there are a number regarding calves under various headings, including: maximum time young calves may be off feed before slaughter; shelter requirements for young calves before transportation and at points of sale or slaughter; ensuring young calves are fit for transport; maximum duration of transport for young calves; requirements for loading and unloading facilities used with young calves; shelter requirements for young calves during transportation; and prohibition on transporting young calves by sea across Cook Strait.

Animal health and welfare

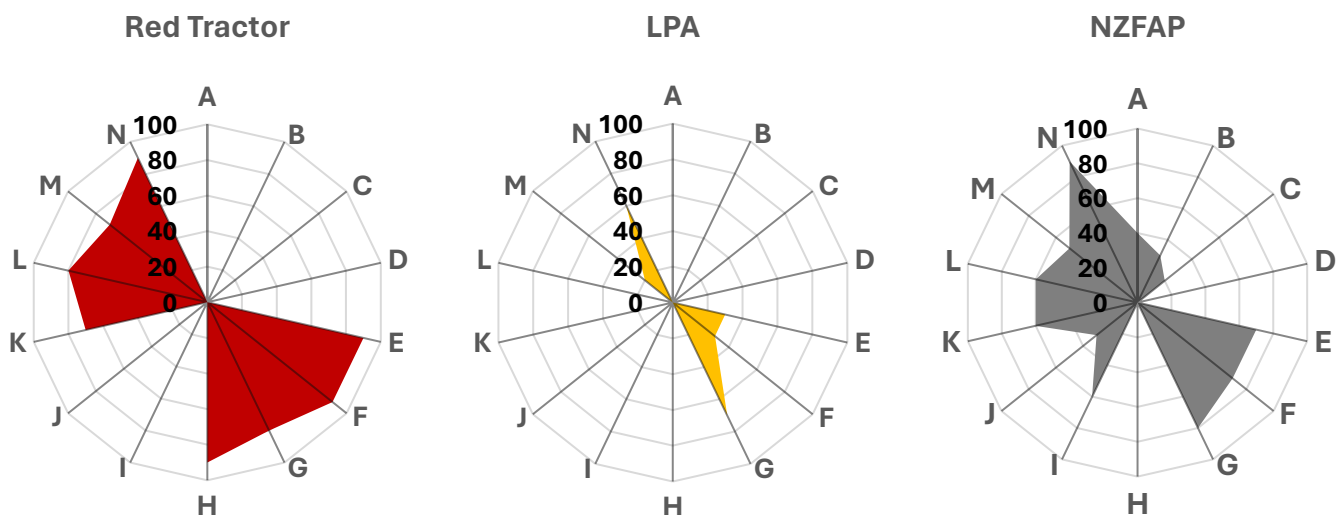
The animal health and welfare category was included within our assessment because, outside of food safety, this is the area which is of most importance to consumers¹⁹. The questions in this section have been designed to identify if the various assurance schemes promote good animal health and enable the animals to experience conditions which promote high welfare.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the Animal Health and Welfare category:

- A. Are animal welfare scoring/outcome measures required?
- B. How effective is each welfare score?
- C. How regularly are welfare scoring measures required to be taken?
- D. Are welfare measures reported to external organisation?
- E. Is a veterinary health plan required and accessible to staff?
- F. Is the plan active?
- G. Are medicine records fully up to date?
- H. Does the scheme require isolation facilities in a separate air space?
- I. Is locomotion scoring required?
- J. Is body condition scoring required?
- K. Is a review of the veterinary health plan required?
- L. Is it a requirement to regularly monitor the health of stock?
 - a. How often?
 - b. How often is a vet visit required?
- M. Are miscellaneous circumstances, including euthanasia, well managed, and equipment controlled to maintain high welfare?
- N. Are staff appropriately trained?
 - a. Is a competent individual available?

Figure 9. Raw scores for each question for the animal health and welfare category



¹⁹ AHDB/Blue Marble, 2022

Table 13. Scores for the animal health and welfare category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	66/140	59%
Livestock Production Assurance	21/140	19%
NZFAP	66/140	52%

Summary of findings

Red Tractor and NZFAP score well against criteria. However, in common with LPA, both schemes require limited proactive steps to monitor animal health and enable the early treatment of illness, although Red Tractor does require more frequent monitoring of the animals than the other schemes.

The general absence of welfare assessments such as locomotion scoring, temperature monitoring, monitoring of intake of feed and water is common in all schemes, although NZFAP does have some requirements for limited amounts of body condition scoring. All schemes require good medicine records as well as requirements for a competent person to administer the medication.

NZFAP does require regular monitoring for lameness. Both NZFAP and Red Tractor require the creation and operation of a veterinary health plan, an annual review by the vet, but protocols to check practical operation of the plan are not clearly specified. New Zealand does permit the use of electro-immobilisation for the treatment of animals.

Key points

None of the schemes assessed in this report include the requirement for implementation of a recognised method of welfare assessment for beef and lamb, although Red Tractor does include some additional recording demands that might contribute to 'iceberg indicators' of welfare (such as locomotion and body condition scoring). This contrasts with requirements made under the Red Tractor Dairy scheme where additional evidence-based welfare assessments are now required.

Red Tractor

Welfare, locomotion and body condition scoring are important indicators of welfare and condition but are not required for cattle or sheep in the Red Tractor scheme.

Livestock Production Assurance

Welfare, locomotion and body condition scoring are important indicators of welfare and condition but are not required for cattle or sheep in the LPA scheme.

LPA does not require a veterinary health plan which is a significant absence, and there is no requirement to regularly monitor the health of stock. LPA does not have a requirement for separate isolation pens, although this is less of a concern due to the fact that housing is used less. Training requirements in this area for staff, although acceptable, are weaker than Red Tractor

NZFAP

NZFAP does not require checks to ensure that the veterinary health plan is active and does not require welfare scoring to be reported externally, despite requiring some scoring to take place.

NZFAP contains no requirement for separate isolation pens, although this is less of a concern as housing is used less in New Zealand. Although lameness checks are required, there is no requirement for checks for any other illness, and there are no specifications around the required frequency of these checks.

Legislative Requirements

Animal health and welfare is regulated in each country, and with Australia much of this is managed at a state level. However, none of the information contained in this section is required by law, other than the keeping of detailed medicine administration records.

England

Under The Protection of Animals (Anaesthetics) Act 1954, as amended, it is an offence to disbud calves or dehorn any cattle without the use of an anaesthetic other than when chemical cauterisation is used. The Welfare of Farmed Animals (England) Regulations 2007 set the minimum welfare standards for all farm animals. It covers standards for stockmanship; health; feed, water and other substances; accommodation; equipment; management; fire and other emergency precautions; pregnancy; rearing; and breeding.

Australia

The 'Australian Animal Welfare Standards and Guidelines²⁰' is part of the Australian Animal Welfare Strategy (AAWS), with the standards providing a basis for developing and implementing consistent legislation across Australia. The standards apply to all those responsible for the care and management of cattle, and are designed to be considered in conjunction with other requirements and legislation including 'Australian Standards for the Export of Livestock.'

New Zealand

The Animal Welfare (Care and Procedures) Regulations 2018 cover a range of animals and situations, including farm husbandry, and was designed to allow better enforcement of low to medium animal welfare offending. It clarifies who can carry out certain surgical procedures on animals, and how this should be done. If an animal's welfare is found to be seriously compromised, penalties under the Animal Welfare Act 1999 apply.

²⁰ Animal Health Australia

Animal medicines

The animal medicines category was created to assess the quality of the scheme's requirements to control the use of medicines, ensure that they are used effectively and that they cannot enter the food chain.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the Animal Medicines category:

- A. Is medicine usage and administration appropriate?
- B. Are movement documents required which show what animals have been treated and their withdrawal periods?
- C. Are withdrawal periods appropriate and adhered to?
- D. Are medicine storage, handling, use and disposal of a good standard?
- E. Is responsible antibiotic use required and assured?
- F. Are critically important antibiotics prohibited or permitted?
- G. Is a central monitoring system required to permit the use of antibiotics?
- H. Is sensitivity testing required prior to use?
- I. Is off-label (cascade) use of veterinary medicine permitted?
- J. Is a broken needle policy and records required?
- K. Is the person administering medicines competent?
- a. How is this assured?
- L. Are detailed medical records required (including purchase records and broken needle records)?

Figure 10. Raw scores for each question area for the animal medicines category

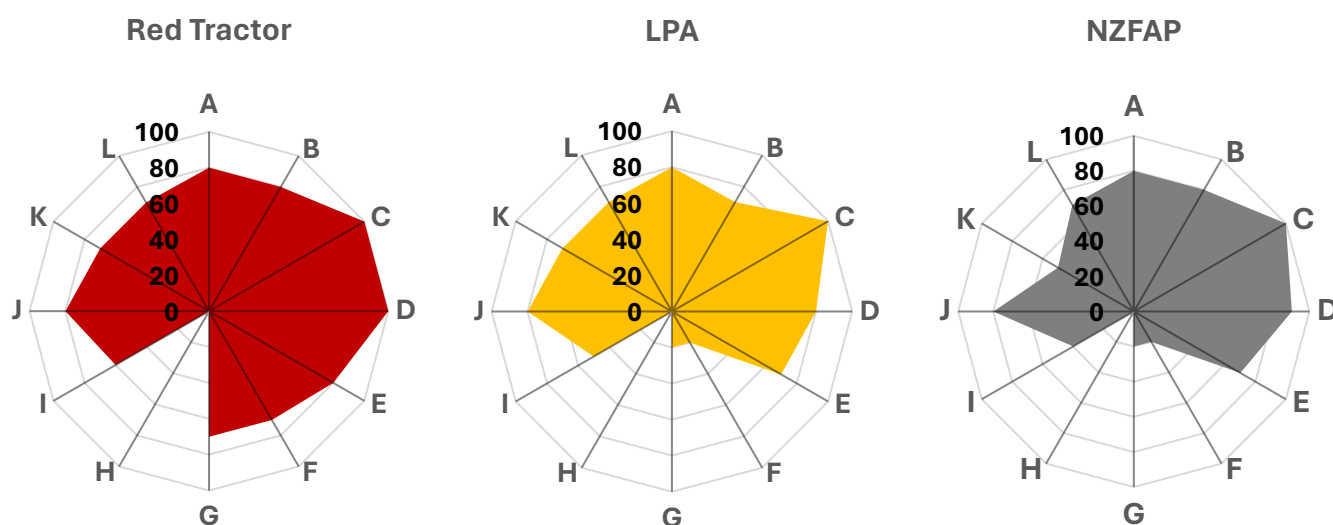


Table 14. Scores for the animal medicines category

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	86/120	77%
Livestock Production Assurance	71/120	74%
NZFAP	70/120	74%

Summary of findings

Overall, control of antibiotic usage is relatively similar within each of the three schemes. All schemes permit the use of antibiotics, and require detailed medicine administration records along with competency for those who are administering the medicines.

All schemes also permit the controlled off-label use of medicines, although the standards are slightly different between the schemes. All schemes also require that animals which have been potentially exposed to broken needles are identified throughout their lives and, if they are being transferred to slaughter, the abattoir must be informed. All schemes also require that medicines are stored appropriately.

Key points

The most significant gaps in each of the schemes is the absence of a requirement for diagnostic testing or sensitivity testing prior to use of specific medicines. Each of the schemes permit the administration of antibiotics by farm workers and do not require any form of veterinary advice prior to administration.

Neither the LPA nor the NZFAP assurance systems require central monitoring of antibiotic use of any form. This is in contrast to Red Tractor which requires the annual collation of all antibiotics used and its recording in the medicine book. Red Tractor recommends, but does not require, that the antibiotic records are submitted to the AHDB medicine hub (or equivalent).

Legislative Requirements

Animal medicine usage is controlled in all regions by the country (or state) regulations. The rules around the use of medicines which are permitted, what they may be used for etc, are almost all legislative, and the assurance schemes simply reflect this. The use of medicines in all three jurisdictions is permissible even by those who are not professionally trained although each assurance scheme requires competency from those administering the treatment.

The requirement for detailed medicine records is also broadly legislative, but each assurance scheme requires the recording of more detail than is required by law. Legislation requires that animals are not sold for slaughter before the withdrawal period for medicines is up.

England

In England, keeping accurate records of medicine use on farms is a legal requirement. The owner or keeper of food-producing animals must maintain records related to the purchase of all veterinary medicinal products acquired for those animals. These records should be kept for a minimum of five years. The following information needs to be recorded: Name of the product and its batch number; Date of acquisition; Quantity acquired; Name and address of the supplier.

When administering medicine, farmers must record: Name of the product; Date of administration; Quantity administered; Withdrawal period; Identity of the treated animal(s). If a vet administers the medicine, they must also record the batch number and their name in your records or provide this information in writing for you to enter. If you dispose of a veterinary medicine (other than by treating an animal), you must record: Date of disposal; Quantity of product involved; Details of how and where it was disposed of.

There are four levels of treatment of antibiotics for veterinary use in the UK²¹;

²¹ NOAH Technical Briefing: Categorisation of Antibiotics and Updated Guidance to Support Responsible use and UK Animal Health and Welfare

1. Category A: Antibiotics in this category are not authorised as veterinary medicines in the EU and should not be used in food-producing animals. They may be given to companion animals under exceptional circumstances
2. Category B: antibiotics in this category are critically important in human medicine and use in animals should be restricted to mitigate the risk to public health and should be considered only when there are no antibiotics in Categories C or D that could be clinically effective. Their use should be based on antimicrobial susceptibility testing, wherever possible
3. Category C: for antibiotics in this category there are alternatives in human medicine. For some veterinary indications, there are no alternatives belonging to Category D. Category C antibiotics should be considered only when there are no antibiotics in Category D that could be clinically effective
4. Category D antibiotics should be used as first line treatments, whenever possible. Again, they should be used prudently, and only when medically needed

Australia

The methods of controlling use of medicines²² are devolved to the states within Australia. These means that the control can be complex. However, the states all have similar requirements, guided by a national approach. The NSW government states that “Australia’s approach to the use of antimicrobials in livestock production is one of the most conservative in the world. Most antimicrobials in Australian agriculture are classed as Schedule 4 drugs which means they can only be purchased with veterinary prescription. However, this does not mean that the treatments have to be administered by vets, and the legislation allows farmers to administer treatment.

Farmers must withhold the animal/s from sale or slaughter for the period of time that is specified on the label of the antimicrobial. The WHP or ESI can range from several days to months, depending on the product used and the final marketplace. Australian livestock producers pay a transaction or slaughter levy to fund marketing, research and residue monitoring activities for their respective industry.

Australia restricts the use of high-importance antimicrobials²³ in Australian food-producing animals. Streptogramins (virginiamycin only) and third-generation cephalosporins are allowed. Cephalosporins can only be used in individual pigs or cattle. Fluoroquinolones, gentamicin and colistin are not permitted in agriculture in Australia.

New Zealand

The following legislation applies within New Zealand:

- Farmers must only use medicines authorised under the Agricultural Compounds and Veterinary Medicines (ACVM) Act 1997.
- If a veterinary medicine has been used in or on an animal, withdrawal periods apply before it is used for food.
- Veterinary medicines registered for use in or on animals must have the withholding period printed on the label.
- Registered veterinary medicines all have conditions placed on their registration to manage risks
- Search ACVM register for conditions of use of a veterinary medicine
- Farmers are allowed to use generic chemicals (products not marketed as veterinary medicines) to treat their own animals. The farmer must comply with fit for purpose requirements stated under regulation 7 of the ACVM (Exemptions and Prohibited Substances) Regulations 2011. The farmer must manage any risks to animal welfare and make sure residues aren't in animal produce sold for human or animal consumption.

²² Anna Sri, Kirsten E. Bailey, James R. Gilkerson, Glenn F. Browning; Laura Y. Hardefltdt “Attitudes towards Use of High-Importance Antimicrobials – A Cross-Sectional Study of Australian Veterinarians

²³ New South Wales Government Department of Primary Industries – April 2019 “Antimicrobials in Agriculture”

New Zealand requires that where a person who is not a veterinarian is allowed to carry out a surgical procedure on an animal, they must be "competent". The treatment of food-producing animals also has record keeping requirements under the Animal Products Act, especially if a risk management programme (RMP) applies. Antimicrobial must only be used to treat animals under veterinary supervision, and the use of antimicrobials as growth promoters is not permitted unless the antimicrobial is not currently used for medicinal application. New Zealand does permit the use of cephalosporins, macrolides and quinolones. It is also useful to note that, the use of antibiotics for lamb production in New Zealand is almost zero.

Biosecurity and disease control

There is a genuine importance to the prevention of the spread of disease. This has traditionally been an area where beef and sheep farms have underperformed²⁴ in comparison to other sectors such as pig and poultry, with many fewer restrictions about who can enter and have contact with animals, the ability to take animals to market and bring them back, and the lack of isolation of newly purchased animals from other animals already on the farm. Farm assurance can have a key role in improving biosecurity practice. Strong biosecurity requirements in farm assurance schemes can encourage better animal health and welfare, as well improved animal performance through drawing the attention of the farmer to its importance.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the Biosecurity and Disease Control category:

- Does the scheme require the creation of a biosecurity plan?
- Does the scheme check adherence to the biosecurity plan?
- Does the scheme require updating of the biosecurity plan?
- Does the scheme require a known health status for animals brought onto the farm?
- Is there a record of people, vehicles and machinery entering the farm?
- Does the scheme require appropriate cleaning material to be available on-farm?
- Does the scheme require appropriate activity to deliver good biosecurity?

Figure 11. Raw scores for each question area for the biosecurity and disease control category

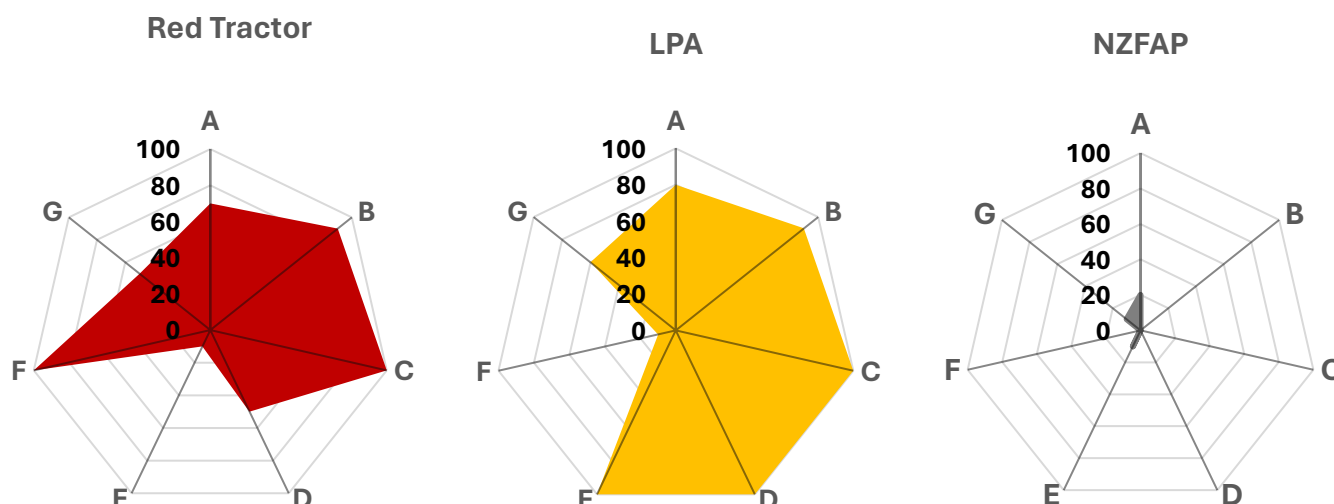


Table 15. Scores for the biosecurity and disease control category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	47/60	67%
Livestock Production Assurance	54/60	86%
NZFAP	4/60	6%

²⁴ Cennydd Owen Jones et al, 'Biosecurity in UK Livestock Farms: An Insight Into current Practice' Jan '23

Summary of findings

There is much in the Red Tractor scheme which is positive and likely to encourage some focus on biosecurity, but the scheme misses some important components which could substantially prevent the transmission of disease. LPA requires the creation of a biosecurity plan and includes more information than Red Tractor on how risks should be mitigated. It also requires that the health status is known for any animals which are brought onto the farm and this is stronger than for other schemes. The NZFAP scheme falls very short of the expected standards around biosecurity, almost completely ignoring the concept. Management of farm biosecurity is heavily linked to animal health planning, and there is merit in linking the two concepts in an assurance scheme.

Red Tractor is not specific about the best biosecurity practices which should be in place on each farm, including a requirement to know the health status of animals which are brought onto the farm, the recording of each visitor to the farm, and the requirement to use, not just possess, appropriate cleaning materials and equipment. The LPA scheme does not provide enough information on what constitutes good biosecurity performance or clearly specify how farms will be assessed against the biosecurity requirements. The NZFAP scheme does not contain a full section on biosecurity which highlights the key biosecurity risks, specifies the key actions which should be considered, and the ways in which the farm will be assessed to provide that good biosecurity is being delivered.

Key points

Red Tractor

Red Tractor and NZFAP both fail to make a requirement for a visitor book to the farm and this could lead to transfer of disease which cannot be traced from farm to farm should an outbreak occur which is transmissible by people and vehicles. Farm visitors can come from a variety of occupations and locations, and therefore pose different levels of risk (e.g., farm merchants, vets, utility providers or other farmers). If a new disease or pest comes onto the farm, a visitor book may provide useful information to assess how it arrived (e.g. who visited and what time and date) and inform potential control measures needed, including the follow up of individual visitors to identify other farms they may have visited.

Red Tractor does not specify how key biosecurity risks should be mitigated, and although it requires approved cleaning chemicals to be present, it does not require their use. It also does not require that the health status of incoming animals is known. This is a very significant weakness, and much can be learned from the LPA scheme in this area. Red Tractor also does not assess the appropriateness of the biosecurity plan – it will simply inspect against the plan.

Livestock Production Assurance

LPA achieves a high score for the biosecurity category, and comprehensively covers most key areas. However, LPA does not require any detail around cleaning and disinfecting material and does not require actions around cleaning or disinfecting. This is potentially not as serious as it would be in England as the vast majority of beef cattle and sheep are never housed in Australia, and thus disinfecting and cleaning is significantly less important.

Although the LPA scheme is comprehensive in its requirements around biosecurity, much of the specific activity needed to deliver good biosecurity is not defined and is left up to the judgement of the farm manager.

NZFAP

The NZFAP scheme does not require a biosecurity plan. This is not quite as serious as it would be in England because of the lower stocking densities which are usually employed but still weakens the scheme.

It is acknowledged that New Zealand has very strong border controls on biosecurity, but the focus of this section was on inter-farm biosecurity requirements which meant that the score was lower. It is important that

on-farm biosecurity protocols are in place to limit the spread of disease such as BVD (Bovine Viral Diarrhoea), Johne's disease and bTB (Bovine Tuberculosis), which are present in New Zealand.

Legislative Requirements

There are very limited requirements in legislation in any of the three countries within regard to biosecurity and the prevention of transmission of disease. It could be argued in all three countries that the legislation could be used to prosecute a manager whose gross negligence permitted the transfer of disease which caused a very substantial welfare problem. However, this is extremely rare, and the main aim of good biosecurity is the prevention of disease, loss of thrift and general underperformance as this is much more common at farm level.

The codes of practice within England and New Zealand do contain references to the importance of good biosecurity (disease prevention measures) and recommend a focus on it within the veterinary health plan. Australia does have legislation which manages biosecurity, but this is focused on the prevention of transmission of diseases from other countries into Australia, and in some cases on preventing state to state transmission (which could, but does not specifically include transmission by livestock).

Livestock transport

The category on livestock transport has been included because it is a critical control point for the welfare of meat animals. Poor or difficult transport conditions can severely compromise the health and welfare of animals over a short period of time and can also reduce the quality of the meat which comes from the animals. As such this is an animal welfare, animal health and food quality indicator and is therefore an important consideration within a farm assurance scheme.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the Livestock Transport category:

- Is there a maximum permitted journey time?
- Is there a maximum permitted journey distance?
- What assurance requirements are there for vehicles/companies which are permitted to transport animals?
- Is there a requirement for assured transport throughout the lifetime of the animal?
- What are the conditions in which animals can be transported?
- Is water/feed available during transport?
- Is there a maximum/minimum stocking density during transport depending on species?
- Are there speed recommendations during transport?
- Are drivers aware of good animal welfare principles and are they effectively trained or certified?
- Is certification and documentation in place?

Figure 12. Raw scores against each question area for the livestock transport category

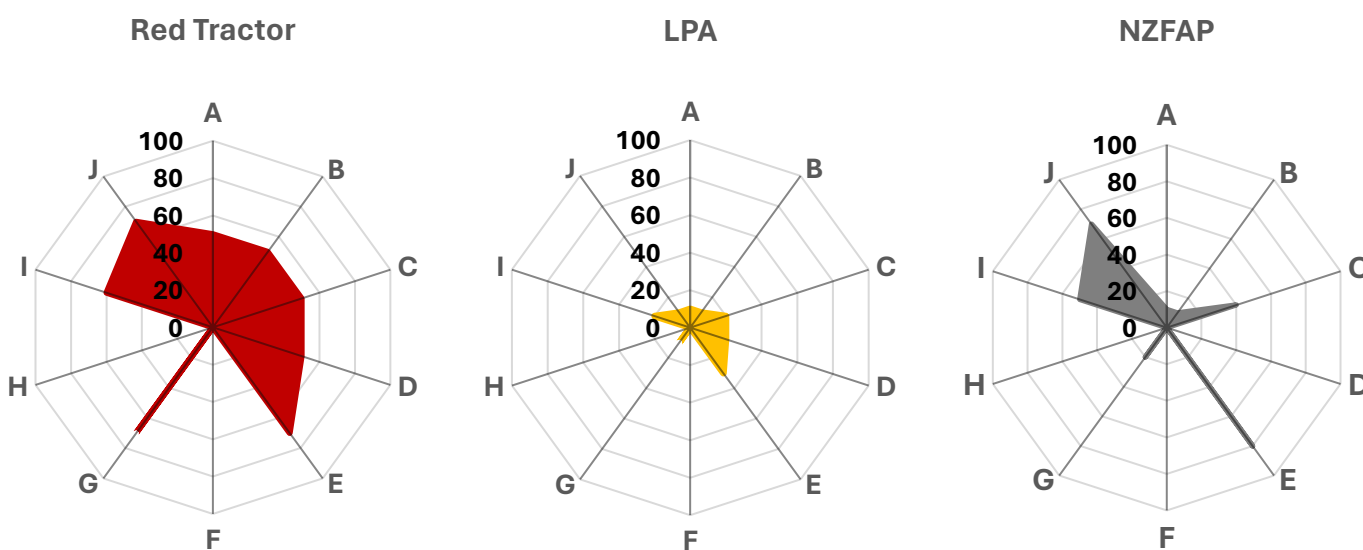


Table 16. Scores for the livestock transport category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	47/100	52%
Livestock Production Assurance	13/100	8%
NZFAP	28/100	33%

Summary of findings

Red Tractor requires that assured transport is used and this provides a degree of confidence around the conditions in which livestock can be transported. A farmer's own transport can be used for journeys of up to 65km and these vehicles are inspected during audit.

NZFAP requires that driver training and livestock crate standards will be randomly checked at the processing sites, which is helpful, whereas LPA has very limited recommendations around the design and condition of transporters.

None of the schemes put distance or time limits on transport of livestock other than for very young animals.

Key points

Red Tractor

The Red Tractor standard for transport gains more points than NZFAP or LPA, although there is still considerable room for improvement even within this standard. There are no limits on distance animals can move, or time limits on journeys except for young lambs and calves which cannot be transported more than 60km without the dam. Conditions for the transporter are broadly specified, although there is room for interpretation. Good driver training and certification is required and assured transport must be used. Some guidance is given around stocking rates, but there do not appear to be strong guidelines around the mixing of different species or different classes of livestock.

Livestock Production Assurance

The LPA standard is limited in this area. Livestock transport is a significant challenge within Australia, and animals can be transported very long distances for long time periods. Legislation does apply around this type of transportation, but the LPA standard does not require that farmers use assured transport (instead it suggests this) and thus there is a low probability of enforceable inspection. LPA contains very few specifications around the conditions in which an animal can be transported. No stocking densities are specified. LPA require a curfew (6 hours for cattle, 12 hours for sheep) from feed and water for animals which are travelling to slaughter. There are certification requirements for livestock drivers under the LPA scheme.

NZFAP

NZFAP does not specify maximum journey times, and ideally this should be addressed, setting a maximum of 8 hours without a rest period, although practically, within New Zealand it is unlikely that a journey would exceed this unless transferring between the two islands. NZFAP is not specific about the specifications of the livestock containers that transport animals or require assured transport. NZFAP also does not consider required assured transport throughout the lifetime of the animal or state required stocking densities during transport.

Legislative requirements

Livestock transport is the subject of legislation within each of the three jurisdictions. Broadly each of the three schemes make requirements which are at the legal requirements for each area. Within Australia the transport legislation is devolved to the various states, and there are some differences between the states.

England

The transport of animals legislation in the UK is governed by Council Regulation (EC) No 1/2005 on the protection of animals during transport and related operations. This regulation requires that means of transport and containers used for transporting animals on long journeys (those in excess of eight hours) must be inspected and approved by the competent authority of a Member State or a body designated by a Member State. This is EU legislation but has currently been accepted for the UK and has not changed (although a

consultation is ongoing). An analysis of the legislation shows that the Red Tractor standard makes requirements that are broadly the same as or just above UK law, including guidance on distances, times, driver licensing etc.

The Welfare of Animals (Transport) Order 1997 (S.I. 1997 No. 1480) Article 6, states that: *(3) Animals shall not be considered fit for transport if (inter alia) they are newborn animals in which the navel has not completely healed. The Welfare of Animals at Markets Order 1990 (S.I. 1990 No. 2627), Article 14, states that: -- no person shall bring to a market a calf which is less than 7 days old or which has an unhealed navel. - no person shall bring to a market a calf which has been brought to a market on more than one occasion in the previous 28 days.*

Australia

Transport legislation in Australia is managed at state level, not national. As a result, the legislation is slightly different across multiple states but is essentially the same because the regulations in the individual states are based on a central document: Australian Animal Welfare Standards and Guidelines – Land Transport of Livestock. The legislation requires that those in charge of transport are competent (or supervised by a competent person), that the transport container is appropriately designed, that animals are fit for transport and segregated appropriately, that stocking density is acceptable, and that water is provided after specified periods of time.

New Zealand

Under New Zealand's system, legislation is created which provides high-level requirements for animal welfare. Underneath this, codes of practice are created and these contain specific advice to be followed by managers and transporters. These are not legislation in and of themselves, but can be used in any prosecutions where animal welfare failings have been found. Failure to meet a minimum standard in this code may be used as evidence to support a prosecution for an offence under the Act.

Under the Animal Welfare Act 1999, both the owner and the person (or persons) in charge of animals have responsibilities for meeting the animals' needs. While animal owners may put animals in the care of others for transport, this does not derogate from their responsibilities under the Act. This code of welfare references regulations issued under the Animal Welfare Act 1999. Regulations are prescribed under the Animal Welfare Act and impose enforceable requirements on owners and persons in charge of animals.

The code contains information including (amongst others); transporter design and maintenance, loading and unloading facilities, journey planning, documentation, animal condition prior to transport, conditions during transport, rest periods. Consequently, although many of the transport requirements in New Zealand are not legislative and instead fall under the code, they are legally enforceable. The code of practice contains much more information than what is contained within the NZFAP assurance scheme. However, the NZFAP scheme does require that farmers and transporters adhere to the code of practice.

The code of practice for transport which outlines the key actions required to deliver the required outcomes. The legislation requires that animals are cared for by enough competent personnel, that the transporter design is appropriate, that there are acceptable loading and unloading facilities, that journey planning takes place, that animals are prepared and fit for transport, that there is adequate ventilation, that animals are monitored, and that for longer journeys, the provision of feed, water and rest is planned and provided.

Vermin control

The control of vermin is included because it is of particular importance where animals are housed. This means that it is more important in England than in New Zealand and in particular, Australia. However, all schemes should include some guidelines around the control of animals which can potentially transmit disease.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in Vermin Control category;

- A. Is a plan to control vermin required by the assurance scheme?
- B. Are actions other than baiting required to prevent vermin infestation?
- C. Is a site survey required on at least an annual basis?
- D. Is an environmental risk assessment required prior to bait laying?
- E. Are dead/trapped vermin disposed of regularly?
- F. Are there requirements in place to ensure that non-target animals do not have access to baits?
- G. Is permanent baiting prohibited?
- H. Are product label directions followed during use?
- I. Is a COSHH assessment required?

Figure 13. Raw scores against each question area in the vermin control category

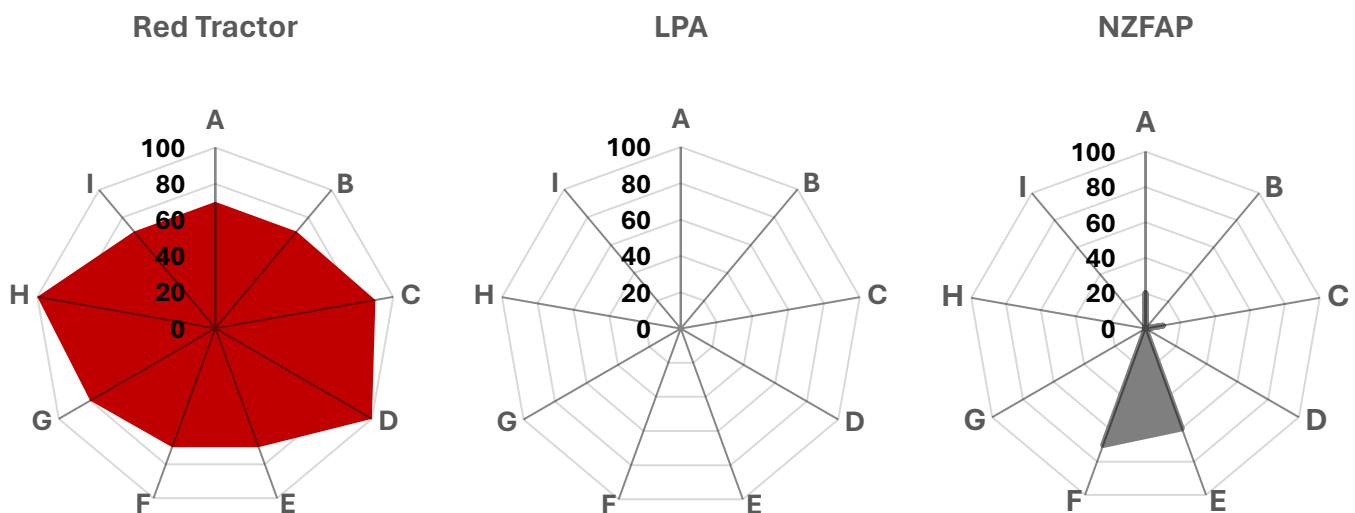


Table 17. Scores for the vermin control category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	72/90	81%
Livestock Production Assurance	0/90	0%
NZFAP	16/90	36%

Summary of findings

There are considerable differences between the schemes with regard to vermin control. The Red Tractor scheme contains substantially more detail, and is much more specific than the other two schemes. This is important because the risk of vermin infestation is much greater in England than it is in Australia and New Zealand as animals can be housed in many parts of England for their entire lives.

Key points

Red Tractor

The Red Tractor standards are relatively strong across each of the assessment questions. Although no answer falls below 70%, there are a few gaps which, if addressed, would help the scheme obtain full marks.

Specific detailed requirements are not included in the overall vermin control plan, including justification for baiting, potential causes of vermin infestation, preventative measures to be taken as opposed to baiting or how to prevent poisoning of non-target species would also be helpful.

Site surveys are only required every 12 months, which makes it more difficult to ensure that baiting occurs when needed but is removed when not required.

Livestock Production Assurance

The Livestock Production Assurance scheme does not cover vermin control at all, as beef and sheep are rarely housed in Australia. It is worth noting however, that there are a large number of finishing units/feedlots in Australia and these often make use of mills which process feed for animals which can attract vermin.

The absence of any content in the LPA scheme regarding vermin control draws a lower score than could be obtained. The absence of content around vermin control does not draw the farm manager's attention to proactive (rather than reactive) planning to manage potential challenges on the unit.

As previously highlighted, livestock housing is much less frequent in Australia than in England and consequently, the need for vermin control with respect to livestock housing is lower. Nevertheless, some vermin control is still needed, for example, around farm yards, feed and bedding storage areas.

NZFAP

The NZFAP scheme gains a low score within this scheme category. The scheme does not require a bait plan, but if one is implemented, controls are required to ensure that livestock cannot access it. The scheme also requires record keeping of bait stations but does not require a map to be produced. The scheme does not suggest alternative actions to baiting, does not require instructions to be followed as bait is placed, and does not require the equivalent of a COSHH assessment for use of the product.

The lack of a requirement for a bait plan is probably the biggest weakness as it does not draw the farm manager's attention to proactive planning to manage potential vermin challenges on the unit.

As for Australia livestock housing is much less frequent in New Zealand than in England and consequently this section is of lower importance, but there still remains some need for vermin control around farm yards, and any areas where feed is stored.

Legislative requirements

The management of vermin on the farm is not subject to legislative control in England, Australia or New Zealand, but the use of chemicals and poisons can fall under specific legislation which controls the following:

- 1) The type of poison which can be used
- 2) Its application and use
- 3) The controls around it

None of the requirements around vermin control (other than safe, appropriate use) are legislative within this category.

Fallen stock

Fallen stock are included as a category because there is a risk to the environment, the health of other animals and potential spread of disease from stock which are not disposed of correctly. This is a generally a greater risk where farms are more intensive, meaning that New Zealand, and particularly England are at greater risk than Australia. We acknowledge that this is a category where practice differs very substantially from country to country.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the Fallen Stock category;

- A. Does the scheme require regular checks for fallen stock?
- B. Are carcass storage methods acceptable?
- C. Are carcass disposal methods acceptable?
- D. Are on-farm disposal facilities acceptable?

Figure 14. Raw scores for each question area for the fallen stock category

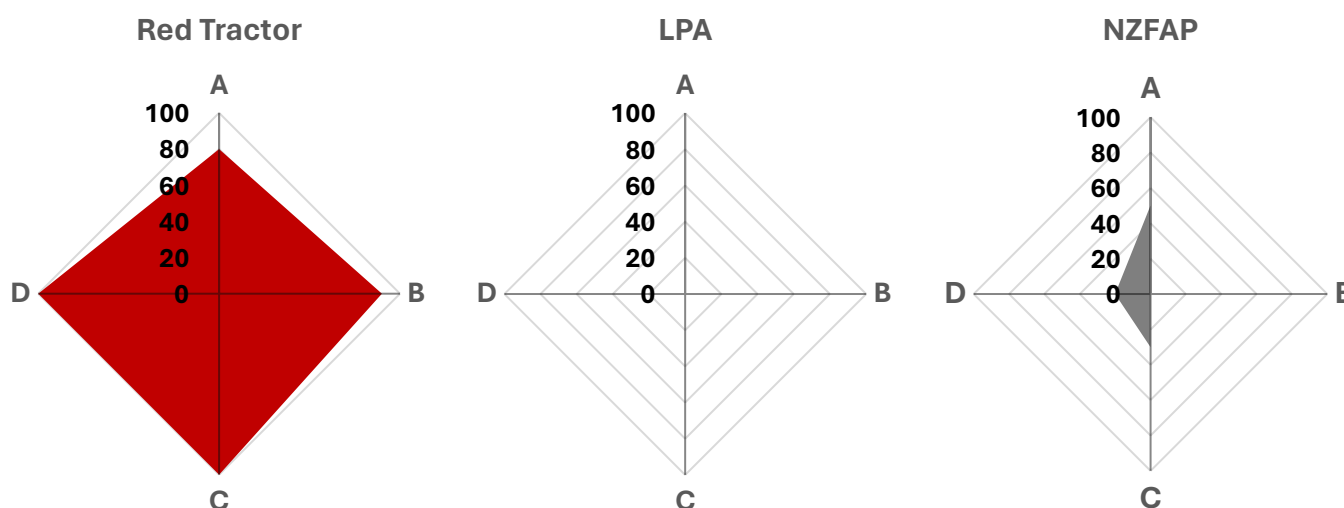


Table 18. Scores for the fallen stock category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	37/40	94%
Livestock Production Assurance	0/40	0%
NZFAP	10/40	25%

Summary of findings

Red Tractor is the only scheme which is fully detailed, and which ensures that fallen stock are dealt with to an acceptable standard. This is to be expected due to the smaller size of farms in England and the much greater intensity of production when compared to New Zealand and, in particular, Australia. For much larger farms, the finding, collection and movement of deadstock is much more challenging. The Red Tractor scheme is necessarily highly specific in its requirements around inspection for fallen stock, collection, storage and disposal and this is reflective of the greater risks around transmission of disease and pollution of the water table.

LPA does not deal with fallen stock at all and therefore scores lower than other schemes which have been studied for this report.

The NZFAP scheme does not address fallen stock in detail, but it does require recording of animal deaths over six months of age, and gives some guidelines around the burial of carcasses.

Key points

Red Tractor

There are no significant gaps for fallen stock standards in the Red Tractor scheme.

Livestock Production Assurance

LPA scheme does not contain requirements about the management and disposal of deadstock, although this would not need to be at the same level of detail as for English and New Zealand schemes. It is accepted that fallen stock are likely to have much lower impact in most cases in Australia than in England, but the scheme does not reference appropriate disposal requiring that animals which have died near waterways or other risk areas are moved to more appropriate locations.

NZFAP

There are many extensive farms in New Zealand, but there are also many reasonably intensive lowland sheep and beef farms, particularly in the South Island, and it is important that carcasses on these farms are removed and dealt with correctly. The NZFAP scheme (at least for intensive farms) does not specify regular inspection for fallen stock and appropriate methods of disposal for the region including the option of burial as well as incineration or transport to a specific disposal site.

Legislative Requirements

England

The Animal By-Products (Enforcement) (England) Regulations 2013 control the disposal of carcasses. Within the Red Tractor scheme the standards are broadly equivalent to the English legislative standard, although the scheme expands slightly on the regulations, covering regular inspection for stock, storage whilst awaiting disposal etc. The English standards require that fallen livestock must be disposed of appropriately and cannot be buried or burnt in the open because of the risk of disease spread through groundwater or air pollution.

Australia

The regulations around fallen stock disposal are managed at state level rather than federal government level. The regulations do differ between states, but are broadly similar. As an example, the NSW state requires the following:

- Carcass disposal should occur as soon as possible after the animal has died. The preferred order for disposal is as follows; Licensed Landfills; Rendering and knackeries; Burial; Composting; Cremation (Burning).
- Burial can occur on or off site depending on the cause of death
- Requirements are given around the appropriate burial spots (2 m from water table, slightly sloping land etc.).

Government of Western Australia also provide specific guidance on carcass disposal, and require that carcasses are disposed of within 72 hours. Burial, composting, incineration or landfill are all accepted.

New Zealand

Within New Zealand, the following activities are permitted provided that specified conditions are met around each one;

- Burial, burning or stockpiling (composting) carcasses are permitted activities, with consents required only if Permitted Activity conditions cannot be met
- The discharge of contaminants into air from outdoor burning of animal carcasses and offal is a permitted activity
- The use of land for an offal pit and the associated discharges onto or into land in circumstances where a contaminant may enter water are permitted activities
- The use of land for a silage pit or the stockpiling of decaying organic matter (including compost) and any associated discharge into or onto land where a contaminant may enter water is a permitted activity,
- The discharge of odour, dust or smoke into air that is not managed by any other rule in this Plan is a permitted activity

The key conditions governing most of these activities is that there is no public nuisance or run-off from the activity.

Environmental protection

The environmental protection category is included because of its importance to the protection and maintenance of the environment in which the farm operates. This section is not about the creation and promotion of additional biodiversity or delivering reduction in GHG output, it is simply focused on the prevention of damage. NZFAP makes an environmental module available to the farmer, but this has not been assessed within this report.

Questions against which the category was assessed

The following questions were used to assess the performance of each scheme in the Environmental Protection category:

- A. Are pesticides stored correctly?
- B. Are pesticides applied correctly?
- C. Are pesticides disposed of correctly?
- D. Are fertilisers stored correctly?
- E. Are fertilisers applied correctly?
- F. Are slurries and manures stored correctly?
- G. Are slurries and manures applied correctly?
- H. Are other potential contaminants dealt with appropriately?

Figure 15. Raw scores for each question area for the environmental protection category

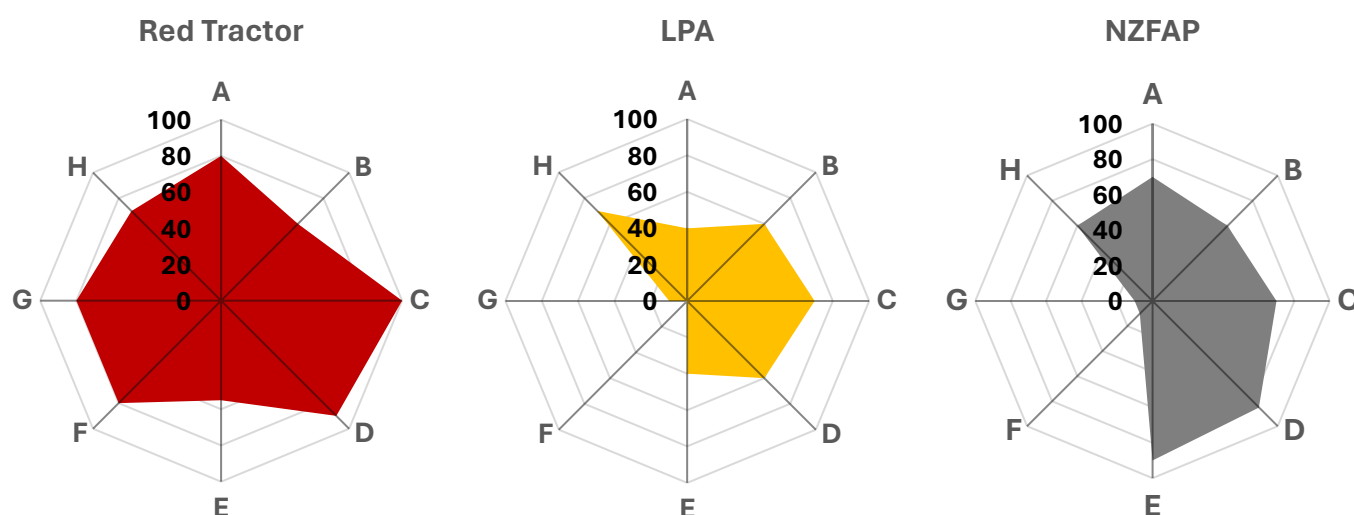


Table 19 Scores for the environmental protection category in each scheme

Scheme	Raw Score	Fully Weighted Percentage Score
Red Tractor	61.5/80	77%
Livestock Production Assurance	35/80	43%
NZFAP	45.5/80	55%

Summary of findings

In the Environmental Protection analysis, Red Tractor scores higher than the other schemes, primarily because it requires higher levels of detail across a wider range of practices.

Key points

Red Tractor

Red Tractor requires appropriate storage, handling and application of pesticides and fertilisers but does not recommend methods of optimising application to maximise resource use efficiency and reduce the chances of environmental damage by the overapplication of chemicals. The scheme does not require appropriate testing/diagnosis prior to application.

Livestock Production Assurance

LPA does not require chemicals to be kept in a locked store (or any kind of designated store). These requirements are about preserving the effectiveness of the chemical, not about protecting the environment. The scheme does not require users to justify the use of chemicals prior to application.

LPA requires that fertilisers and organic manures must be applied in a manner that minimises the risk of contamination but do not specify the risks associated with application, as well as the actions which increase or reduce the risk. The scheme also requires the correct application of pesticides and fertilisers but does not recommend methods of optimising application to maximise resource use efficiency and reduce the chances of environmental damage by the overapplication of chemicals. The scheme does not require appropriate testing/diagnosis prior to application.

NZFAP

NZFAP requires the correct application of pesticides and fertilisers but does not recommend methods of optimising application to maximise resource use efficiency and reduce the chances of environmental damage by the overapplication of chemicals. The scheme does not require appropriate testing/diagnosis prior to application.

NZFAP does not discuss either the application or storage of manure or slurries, which is a significant omission for some units, particularly beef finishing units/feedlots. The scheme does not include narrative around the risks of manures and slurries and the correct storage and application methods.

Legislative Requirements

The control and use of pesticides is heavily regulated in each country in this study, and the requirements within the farm assurance schemes are primarily based on the regulation.

England

Within the UK, pesticides use is controlled by the Health and Safety Executive. Users of pesticides are required to comply with the Official Controls, and before any pesticide product can be used, sold, supplied or stored it must be authorised for use. The requirements set out the competence requirements for sale and use of PPPs, the use, handling and storage requirements of PPPs (including aerial spraying) and requirements for the inspection of PPP equipment. Everyone who uses a PPP must, amongst other things: take all reasonable precautions to protect human health and the environment; confine the application of the pesticide to the crops or area to be treated; ensure when using pesticides in certain specified areas, for example, those used by the general public, that the amount of PPP used and the frequency of use are as low as are reasonably practicable. Anyone using a professional PPP must either have a recognised specified certificate (previously known as a 'Certificate of Competence') or be working under the direct supervision, for the purposes of training, of someone who has such a certificate. The majority of the standards within Red Tractor are therefore legislative, with other details being taken from the Codes of Practice. The Codes of Practice are much more detailed than Red Tractor requirements.

Australia

Australia has separate legislation which controls the use of agricultural chemicals and medicines (although all are referred to as chemicals). The Australian Agricultural and Veterinary Chemicals Code Act 1994 establishes

a framework for the evaluation, registration, and control of agricultural and veterinary chemical products. It aims to ensure the safety, efficacy, and quality of agricultural and veterinary chemical products and protect human and animal health, the environment and trade interests. The Australian Pesticides and Veterinary Medicines Authority functions and powers include assessing the suitability of chemical products for sale in Australia, registering chemical products as well as setting standards for residues of chemicals and collaborating with governments and authorities on chemical product management.

New Zealand

The Environmental Protection Authority regulates pesticides within New Zealand. They regulate pesticides, household chemicals and other dangerous substances under the Hazardous Substances and New Organisms (HSNO) Act. NZ also have regulations which control agrichemical use which regulate agrichemical use, transport and storage to handling, labelling and disposal, and aim to ensure consistent good practice. The standard has been updated to encompass new application methods (drones, autonomous vehicles), as well as expanded off-label guidelines.

Summary of findings

The findings from this study show that, when directly compared, Red Tractor consistently achieves higher scores than the LPA Scheme and NZFAP schemes across every category, with the only exception being biosecurity and disease control. This is partially because the Red Tractor scheme is more prescriptive and contains more detail than the other schemes (meaning that it is likely to score more highly in any comparison), and partially because it targets areas which are important to the UK consumer. The following table shows how each scheme compares in each category using the fully weighted percentage scores.

Table 20. Final weighted % scores for all schemes

Category	RT	LPA	NZFAP
Traceability, documentation and assurance	77%	54%	51%
Personnel	72%	6%	35%
Food Safety	77%	70%	67%
Housing and Shelter	75%	16%	63%
Feed and Water	85%	22%	76%
Husbandry Procedures	74%	36%	73%
Youngstock Management	81%	18%	55%
Animal Health and Welfare	59%	19%	52%
Animal Medicines	77%	74%	74%
Biosecurity and Disease Control	67%	86%	6%
Livestock Transport	52%	8%	33%
Vermin Control	81%	0%	36%
Fallen Stock	94%	0%	25%
Environmental Protection	77%	43%	55%

Summary of categories

Traceability, documentation and assurance

An effective farm assurance scheme must inspect and record against a clearly defined set of standards and must, to a high degree of confidence, be able to assure that the livestock products which are eventually sold can be traced back to the farm from which it originated. To this end, the basic scheme standards must be robust, and the documentation created by the scheme detailed and specific enough to allow the user to be confident that the scheme delivers against its stated aims. Within this category, Red Tractor scored higher than its counterparts, mainly due to its requirements for assured transport, animal identification requirements and robust audit frequency.

Personnel

The personnel category has been designed to test the assurance which the schemes provide around the welfare of those who access and work on farms. This concept includes the safety of staff as they work on the farm, the induction and training that is required, the qualifications which are necessary for a person to work on the unit, the ways in which competency and training needs are assessed, and the continuous professional development that takes place on the farm.

Red Tractor scored highest in this category. All schemes require competency from staff, but do not promote activity to continuously improve knowledge of best practice as well as to develop the personal skills leading to improved job satisfaction, job performance and safety. Red Tractor comes closest by requiring regular assessment of staff competency (without giving a great deal of explanation about how this should be done),

and by requiring that training is provided where performance is below that expected. Training records are required, but assessment records are not specified (although this is implicit). Neither LPA or NZFAP require this level of supervision and training.

Food Safety

The Food Safety section was created to test the effectiveness of each assurance scheme in ensuring that food sourced from livestock produced under their schemes are free from contamination by chemicals, tainted food, or physical contaminants such as broken needles.

Although none obtained full scores, all schemes performed relatively well in this area. However, a few gaps were found in each of the schemes, including Red Tractor not specifying a feed withdrawal period for sheep prior to slaughter, the unknown audit frequency of LPA, and NZFAP's use of non-independent audits on an alternating basis.

Housing and shelter

The housing and shelter section was designed to ensure that animals produced under each assurance scheme have accommodation which is appropriate to their needs. This includes housing and the provision of appropriate shelter when animals are outside.

The Red Tractor scheme again scored higher than others in regard to housing. This is because animals can be housed for their entire lives in England and so the standard is more detailed than the others, whereas animals are rarely housed (but may occasionally be) in either Australia or New Zealand, and therefore is less of a concern in the standards.

Feed and Water

The feed and water category questions were designed to test if the assurance scheme can ensure that cattle and sheep have ready access to appropriate, clean, fresh feed and water, and that the nutritional needs of the animal are fully met.

The Red Tractor and NZFAP schemes scored well, with their scores being relatively equal apart from the requirements to check and maintain equipment. The LPA scheme score was much lower, reflecting significant gaps around the assurance of adequate provision of food and water at all times.

Husbandry procedures

The husbandry procedures section was designed to identify what procedures are permitted under each scheme, the ages at which specific practices are permitted and the measures which are taken to protect animal welfare during the procedures. The Red Tractor and NZFAP scored reasonably well in this section, but the LPA scheme reflects a more traditional style of farming and objectively does not score as well as the others. It is freer in the activities it permits (e.g. mulesing and hot branding), and allows procedures without pain relief at considerably older ages.

Youngstock management

Youngstock management is critically important to the long-term health of the animal. The Red Tractor and NZFAP schemes score relatively well in this area and give confidence that farmers will consider the needs of youngstock separately from mature stock except where they are reared on farms where assurance criteria may not be met. The LPA scheme does not consider the needs of youngstock separately to mature stock, and whilst there is a requirement to ensure that animal welfare is maintained at all times, there are few prompts within the scheme that would encourage the farmer to ensure that youngstock get additional attention and care.

Animal health and welfare

The animal health and welfare category was included within the assessment because, outside of food safety, this is the area which is of most importance to consumers²⁵. Red Tractor and NZFAP score acceptably against scoring criteria and broadly will ensure that the welfare of animals meets an acceptable standard. However, in common with LPA, both schemes require limited proactive steps to monitor animal health and enable the early treatment of illness, although Red Tractor does require more frequent monitoring of the animals than the other schemes.

The general absence of welfare methods such as locomotion scoring, temperature monitoring, monitoring of intake of feed and water is common in all schemes, although NZFAP does have some requirements for limited amounts of body condition scoring. All schemes require good medicine records as well as requirements for a competent person to administer said medications, although Red Tractor gains better scores due to its enhanced requirements compared to the other schemes.

NZFAP does require regular monitoring for lameness. Both NZFAP and Red Tractor require the creation and operation of a veterinary health plan, and an annual review by the vet, but protocols to check operation of the plan are not specified. New Zealand does permit the use of electro-immobilisation for the treatment of animals.

Animal medicines

The animal medicines category was created to assess the scheme's ability to control the use of medicines, and to ensure that they are used effectively and that they cannot enter the food chain.

Overall, control of antibiotic usage is relatively similar within each of the three schemes. All schemes permit the use of antibiotics, encourage responsible use, require detailed medicine administration records, and all also require competency from those who are administering the medicines.

All schemes permit the controlled off-label use of medicines, although the standards are slightly different between the schemes. All also require that animals which have been potentially exposed to broken needles are identified throughout their lives and, if they are being transferred to slaughter, that the abattoir is informed. All schemes also require that medicines are stored appropriately.

Neither the LPA nor the NZFAP assurance systems require central monitoring of antibiotic use of any form. This is in contrast to Red Tractor which requires the annual collation of all antibiotics used and its recording in the medicine book.

Biosecurity and disease control

There is a genuine importance to preventing spread of disease through optimised biosecurity. This has traditionally been an area where beef and sheep farms have underperformed²⁶ in comparison to other sectors such as pig and poultry, with many fewer restrictions about who can enter a farm and have contact with animals, the ability to take animals to market and bring them back, and the lack of isolation of newly purchased animals from other animals already on the farm.

In this category, LPA scored highest, with Red Tractor scoring lower, and NZFAP substantially lower than the top scoring scheme. There is much in the Red Tractor scheme which scores well and is likely to encourage a focus on biosecurity, but the scheme misses some important components which could slow or prevent the transmission of disease. LPA requires the creation of a biosecurity plan and includes more information than

²⁵ AHDB/Blue Marble, 2022

²⁶ Cennydd Owen Jones et al, *'Biosecurity in UK Livestock Farms: An Insight Into current Practice'* Jan '23

Red Tractor on how risks should be mitigated. It also requires that the health status is known for any animals which are brought onto the farm, and this is stronger than for other schemes. The NZFAP scheme does not cover biosecurity in detail, and just encourages farmers to consider it,

Livestock transport

The category on livestock transport was included because it is a critical control point for the welfare of meat animals. Poor or difficult transport conditions can severely compromise the health and welfare of animals over a short period of time and can also reduce the quality of the meat which comes from the animals²⁷. As such this is an animal welfare, animal health and food quality indicator and is therefore an important consideration within a farm assurance scheme.

None of the schemes put distance or time limits on transport of livestock other than for very young animals. Red Tractor requires that assured transport is used, and this provides a degree of confidence around the condition in which livestock can be transported. Farmer's own transport can be used for journeys of up to 65km and these vehicles are inspected during audit.

NZFAP requires that driver training and livestock crate standards will be randomly checked at the processing sites which is helpful, whereas LPA has very limited recommendations around the design and condition of transporters.

Vermin control

The control of vermin was included because it is of particular importance where animals are housed. This means that it is more important in the UK than in New Zealand and in particular, Australia.

There are considerable differences between the schemes with regard to vermin control. The Red Tractor scheme contains substantially more detail and is much more specific than the other two schemes. LPA does not cover the concept of vermin control.

Fallen stock

Fallen stock were included as a category because there is a risk to the environment, the health of other animals and a potential spread of disease from stock which are not disposed of correctly. This is a generally a greater risk where farms are more intensive, meaning that England and New Zealand are at greater risk than Australia – although the risk still exists in the latter two countries, albeit at a reduced level.

Red Tractor is the only scheme that ensures that fallen stock are dealt with to an acceptable standard. This is to be expected due to the smaller size of farms in England and the much greater intensity of production when compared to New Zealand and, in particular, Australia. The Red Tractor scheme is highly specific in its requirements around inspection for fallen stock, collection, storage and disposal and this is reflective of the greater risks around transmission of disease and pollution of the water table.

Environmental protection

The environmental protection category was included because of its importance to the protection and maintenance of the environment in which the farm operates. This section is not about the creation and promotion of additional biodiversity or delivering reduction in GHG output, it is simply focused on the prevention of damage. NZFAP makes an environmental module available to the farmer, but this has not been assessed within this report as it is not part of the main assurance scheme.

²⁷ Gary C. Smith et al 'Effect of Transport on Meat Quality and Animal Welfare of Cattle, Pigs, Sheep, Horses, Deer, and Poultry' December 2004

Red Tractor scored higher than LPA and NZFAP, although no scheme received full score. All of the schemes require the correct application of pesticides and fertilisers, but do not recommend methods of optimising application. LPA received a lower score mainly because it does not require chemicals to be kept in a locked, or any kind of designated store, and NZFAP received a lower score due to its lack of standards regarding either the application or storage of manure or slurries.

Summary of Legislation

The legislative framework in each country was researched as part of this project. This was not a forensic analysis, but was designed to uncover the broad base legislation against which farms operate and which will inevitably form some of the requirements within assurance schemes. Legislation is useful, but by itself is rarely inspected. Farm assurance schemes provide a degree of assurance around adherence to legislation because this forms part of the inspection process. The basic legislation under each inspection category was summarised as follows:

Movements and traceability

A significant component of the content of all three schemes is based on legislation in the countries in which they are based. Animal traceability within all three schemes relies entirely on country legislation, with England and Australia requiring tagging to provide individual identification of both cattle and sheep (although both essentially use mob-based reporting for sheep movements), in combination with central reporting of movements via a centralised, electronic system. In contrast, New Zealand only requires tagging and individual identification of cattle, and traces sheep movements through a paper-based mob movement system for sheep.

Personnel

The wellbeing of personnel at work in all three regions is governed by legislation. Almost all legislation is related to workplaces in general rather than farms in particular, although where it is deemed appropriate in some regions, additional legislation is introduced to manage agricultural employment. Within Australia, overarching national legislation applies, but state-specific legislation has also been introduced in some instances.

In summary, local legislation in all three places requires that practical steps are taken to ensure that workplaces are safe and that people are protected from danger. No specific requirements are made in legislation in regard to training, although this could potentially be used in a prosecution if training should have been provided to enable safe working or high animal welfare.

Food Safety

Food safety is of critical importance within each region, and all three areas carry extensive legislation to govern activities and practice. Much food safety legislation between New Zealand and Australia is shared or harmonised. However, most food safety legislation in all three regions is focused on areas further up the production chain than primary farming and does not have a specific application to farms.

The primary factors relating to food safety in farming are related to cleanliness of animals at slaughter, avoidance of contamination with medicines or chemicals, and the ability to trace animal movements throughout the food chain should a challenge occur. As a result, specific food safety legislation does not tend to apply to farms in these regions in the same way that the requirements around safe pesticide storage and use, or the specific rules around reporting of animal movements.

Housing and Shelter

There is limited specific legislation around housing and shelter of animals in any of the regions in this study, with principles for governance being drawn instead from animal welfare requirements and, on occasion,

worker safety regulations. Within England, housing must be appropriate, and must not cause discomfort or pain. Australia and New Zealand use slightly different language to make the same requirement. Broadly, in each region the suitability of housing and shelter is left up to the judgement of the farmer, but welfare legislation would be used to prosecute if welfare was found to be sub-optimal. All regions provide guidance on housing and shelter which the farmer should use to ensure that both are appropriate.

Access to Food and Water

Legislation in all three regions requires that animals receive enough water and access to a diet in sufficient amounts to meet all nutritional needs of the animal enabling it to remain in good health. Codes of practice or Guidance are available in all regions to enable the farmer to understand their responsibilities.

Husbandry Procedures

Animal welfare regulations govern the husbandry procedures which are permitted in each country, and the scheme standards are broadly equivalent to legislative standards in the relevant region including requirements around use of anaesthetics or analgesics when performing specific painful husbandry practices.

Australian legislation permits the use of hot branding of cattle, which almost all welfare specialists agree is painful and unnecessary. Australian legislation also does not require the use of pain relief unless (in some cases) animals are more than 12 months of age, well above the age which this is permitted in the other regions.

Youngstock Management

There is a very limited amount of legislation within any of the three countries in the study which is relevant specifically to youngstock. The relevant legislation which controls the welfare of and husbandry procedures on youngstock is contained within the general animal welfare legislation of each country.

Animal Health and Welfare

Animal health and welfare is covered within each country by animal welfare legislation. Good animal health and welfare is an output of a wide range of factors, including management practices, housing, nutrition and husbandry procedures, as well as effective health and welfare planning.

The legislation in each country does cover each of these areas, to a greater or lesser extent. Husbandry procedures are covered in detail as they have the most potential to cause harm, and appropriate nutrition is also specified. Aspects like housing and management practices are generally left up to the stock manager's discretion, whilst requiring that appropriate outcomes are achieved. The legislation in each country does not require that veterinary health plans are in place, or that welfare scores/locomotion scores are recorded. All legislation requires that medicine records are kept up to date.

Animal Medicines

Animal medicine approvals, purchasing, use and disposal are all tightly controlled by legislation in each country. All three countries require that medicines are approved by a central organisation. All three countries also permit off-label use of medicines under veterinary supervision. Full medicine records are required in each country, although the exact requirements differ slightly. All three countries permit the use of antibiotics, and they can be administered by farmers. All three countries also require that detailed records are kept on withdrawal periods, ensuring that medicines do not enter the food chain. The countries all permit some use of some critically important antibiotics to treat animals but do discourage their use. Australia takes the strictest approach to the use of antimicrobials with most antibiotics in agriculture being classed as Schedule 4 drugs, meaning they can only be purchased with veterinary prescription. Fluoroquinolones, gentamicin and colistin are not permitted for use in agriculture in Australia. Cephalosporins can only be used in individual pigs or cattle. England and New Zealand also permit the use of high priority antibiotics but discourage their regular use.

Biosecurity and disease control

There is no legislative control of biosecurity on beef and sheep farms in any of the three countries, with the exception of controlled diseases such as Foot and Mouth.

Livestock Transport

Each country has legislation in place to manage livestock transportation. In England, legislation requires that a transporter authorisation is in place for commercial operators, or for any transportation above 65km. Additional certification is required if animals are to be transported for more than 8 hours. There is specific legislation around transporter module condition and loading conditions. Journey planning is required for commercial transport or longer transport.

New Zealand requires that animal welfare is maintained at all times and provides a code of practice for transport which outlines the key actions required to deliver the required outcomes. The legislation requires that animals are cared for by enough competent personnel, that the transporter design is appropriate, acceptable loading and unloading facilities, that journey planning takes place, that animals are prepared and fit for transport, that there is adequate ventilation, that animals are monitored, and that for longer journeys, the provision of feed, water and rest is planned and provided.

In Australia, transport legislation is managed at state level, not national. As a result, the legislation is slightly different across multiple states but is essentially the same because the regulations in the individual states are based on a central document: Australian Animal Welfare Standards and Guidelines – Land Transport of Livestock. The legislation requires that those in charge of transport are competent (or supervised by a competent person), that the transport container is appropriately designed, that animals are fit for transport and segregated appropriately, that stocking density is acceptable, that water is provided after specified periods of time.

Vermin control

There is no legislative requirement for vermin control in any of the three countries. However, legislation does control the chemicals that can be used to deliver vermin control in each region.

Fallen Stock

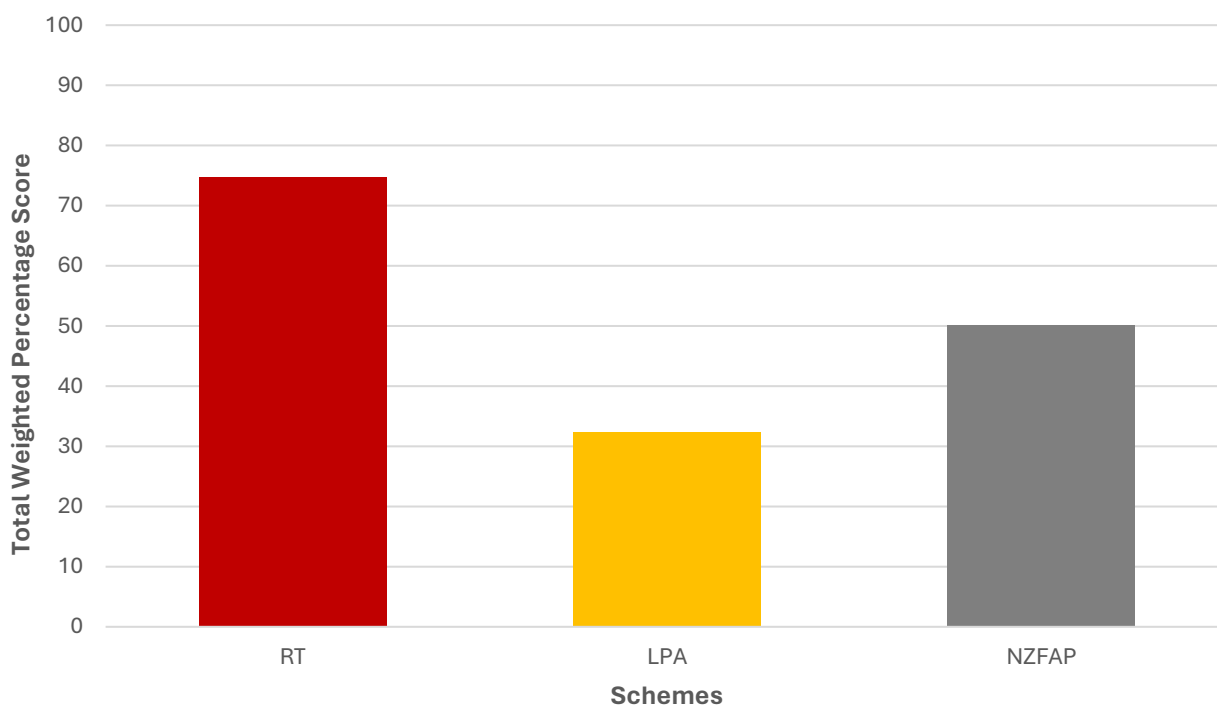
The Animal By-Products (Enforcement) (England) Regulations 2013 control the disposal of carcasses. English standards require that fallen livestock must be disposed of appropriately and cannot be buried or burnt in the open because of the risk of disease spread through groundwater or air pollution. Within Australia the regulations around fallen stock disposal are managed at state level rather than federal government level. The regulations do differ between states but are broadly similar. As an example, the NSW state requires that carcass disposal should occur as soon as possible after the animal has died. The preferred order for disposal is as follows; licensed landfills; rendering and knackeries; burial; composting; cremation (burning). Within New Zealand burial, burning or stockpiling (composting) carcasses are permitted activities, with consents required only if Permitted Activity conditions cannot be met. The key condition governing most of these activities is that there is no public nuisance or run-off from the activity.

Environmental Protection

The concept of environmental protection is contained within the legislation of each country. The legislation which governs this is mainly contained with other legislation, such as that governing the use of pesticides, fertilisers or manures. Legislation in England specifies the chemicals which can be used, the application methods and precautions and the certification of operators. The Australian legislation also specifies the chemical which can be used, how it is sold, and practices which should be applied. New Zealand has similar legislation, controlling agrichemical use, transport and storage to handling, labelling and disposal, and aim to ensure consistent good practice.

Conclusions

Figure 16. Final weighted percentage scores for each scheme



It can be seen from Figure 16, above, the Red Tractor scheme obtained a higher overall weighted score than NZFAP, which itself outperformed the LPA scheme. This is partially because the Red Tractor scheme is more prescriptive and contains more detail than the other schemes, meaning that it is likely to score more highly in any comparison, and partially because it targets areas which important to the UK consumer. However, there are areas of potential improvement for every scheme in all categories. All of the schemes provide some degree of customer reassurance, but this does vary strongly according to the scheme and the specific category of study.

The regulatory baselines are clear in each country and are relatively similar in their requirements. Australia has the most complex regulatory framework due to the existence of federal legislation for some categories, and state legislation for others. Although most state legislation is based on central guidance, this can result in differing regulations in each of the six Australian states. Each country also produces codes of practice for their producers, which, despite not being legislation can be and are used in enforcement proceedings. Within each country, if the legislation is followed, animals will be raised to an acceptable standard (with notable exceptions being the use of hot-branding and mulesing in Australia). The major challenge of legislation is that in most cases it is not inspected on anything approaching a regular basis, and it is this that is addressed by farm assurance, where schemes with regular inspection intervals ensure that there is both regulatory and scheme compliance.

Appendix 1. Category Questions

Traceability, Documentation and Assurance

- A. Are cattle individually identified on the farm of origin?
- B. Are sheep individually identified on the farm of origin and linked to a dam?
- C. Is tagging/identification required close to time of birth for cattle?
- D. Is tagging/identification required close to time of birth for sheep?
- E. Is there a central database recording all farm movements?
- F. Do cattle movements have to be individually reported to a central database within an acceptable timeframe? (inside 3 days)
- G. Do sheep movements have to be individually reported to a central database within an acceptable timeframe? (inside 3 days)
- H. Is a Food Chain Information declaration (or equivalent) required to travel with animals which are being transported to slaughter?
- I. Is the traceability system robust (Cattle)?
- J. Is the traceability system robust (Sheep)?
- K. Audit frequency?
- L. Auditor training and standardisation?
- M. Are cattle assured from birth?
- N. Are sheep assured from birth?
- O. Are the certification bodies required to be accredited to ISO17065, with the specific standard within their scope?
- P. Do assured animals need to be transported by assured transporters to retain their approval status?

Personnel

- A. What qualifications are required for farm staff?
- B. Is staff induction required?
- C. Is staff training required?
- D. What training records are required?
- E. What topics are covered in training and do these meet the needs of the farm staff appropriately?
- F. How often is training required?
- G. Are appropriate Health and Safety policies required?
- H. Is the performance of employees reviewed regularly and appropriate training given if required?
- I. Is labour provision from external providers adequately covered?

Food Safety

- A. Does the scheme require actions which manage vermin infestation on the farm?
- B. Does the scheme require activity to prevent chemical contamination of food?
- C. Does the scheme require activity to prevent contamination of food with medicines?
- D. Does the scheme require activity to ensure that broken needles or other physical contaminants do not reach the food chain?
- E. Does the scheme restrict food types which can be offered to ruminants in order to prevent prion diseases?
- F. Does the scheme require dietary restriction of sheep prior to slaughter to prevent contamination during the slaughter and processing process?
- G. Is animal traceability robust (cattle)?
- H. Is animal traceability robust (sheep)?
- I. Is the assurance scheme robust and trustworthy, with adequate audit independence and frequency?

Housing & Shelter

- A. Is housing well-designed and safe?
- B. Does housing promote high welfare?

- C. Is housing hygienic?
- D. Is there adequate ventilation?
- E. Is housing well-lit?
- F. Is housing structurally sound?
- G. Is there adequate space available for each animal?
- H. Are loading and unloading facilities available and to a good standard?
- I. Are there appropriate isolation and birthing facilities?
- J. Is housing appropriate and safe for stock managers?
- K. Do animals outside have access to appropriate shelter?
- L. Are animals kept outside kept in appropriate conditions, including well drained lying areas and the absence of severe poaching?
- M. Are bedding requirements appropriate?
- N. Are requirements for records appropriate?

Feed and Water

- A. Do animals have enough feed and water to maintain normal bodily function?
- B. Do animals have easy ready access to fresh, clean water?
- C. Is the feed offered to animals is appropriate?
- D. Are the feed storage requirements appropriate?
- E. Are growth promoting hormones permitted?
- F. Are any types of feed prohibited?
- G. Are systems and records in place to prevent livestock being contaminated via feed?
- H. Do young animals receive enough colostrum?
- I. Is feeding equipment checked regularly and maintained?

Husbandry Procedures

- A. Is castration permitted?
- B. What age is castration permitted up to without anaesthetic and by what means?
- C. What age is castration permitted to with anaesthetic and by what means?
- D. Is disbudding permitted?
- E. What methods of disbudding are permitted? Is anaesthetic required?
- F. What methods of dehorning are permitted? Is anaesthetic required?
- G. Is branding permitted? If so, hot branding, freeze branding or both?
- H. Is tail docking permitted? If so, what rules govern this?
- I. What other miscellaneous procedures are permitted? Are they acceptable?
- J. Is mulesing permitted?
- K. Who is permitted to carry out each procedure, and what qualifications are required?

Youngstock Management

- A. Do animals have comfortable and safe indoor accommodation?
- B. Is there adequate fresh air?
- C. Is there adequate clean water?
- D. Is there adequate bedding?
- E. Do animals have access to appropriate amounts of feed?
- F. Is there adequate light?
- G. Is there adequate darkness?
- H. Is there an absence of unnecessary and painful husbandry procedures?
- I. Are animals able to safely and easily access feed and water?
- J. Are animals permitted to be kept on their own when very young?
- K. Are animals permitted to be kept on their own when older?
- L. Is the animal's diet nutritious and appropriate?

Animal Health and Welfare

- A. Are animal welfare scoring/outcome measures required?
- B. How effective is each welfare score?
- C. How regularly are welfare scoring measures required to be taken?
- D. Are welfare measures reported to external organisation?
- E. Is a veterinary health plan required and accessible to staff?
- F. Is the plan active?
- G. Are medicine records fully up to date?
- H. Does the scheme require isolation facilities in a separate air space?
- I. Is locomotion scoring required?
- J. Is body condition scoring required?
- K. Is a review of the veterinary health plan required?
- L. Is it a requirement to regularly monitor the health of stock?
 - a. How often?
 - b. How often is a vet visit required?
- M. Are miscellaneous circumstances, including euthanasia, well managed, and equipment controlled to maintain high welfare?
- N. Are staff appropriately trained?
 - a. Is a competent individual available?

Animal Medicines

- A. Is medicine usage and administration appropriate?
- B. Are movement documents required which show what animals have been treated and their withdrawal periods?
- C. Are withdrawal periods appropriate and adhered to?
- D. Are medicine storage, handling, use and disposal of a good standard?
- E. Is responsible antibiotic use required and assured?
- F. Are critically important antibiotics prohibited or permitted?
- G. Is a central monitoring system required to permit the use of antibiotics?
- H. Is sensitivity testing required prior to use?
- I. Is off-label (cascade) use of veterinary medicine permitted?
- J. Is a broken needle policy and records required?
- K. Is the person administering medicines competent?
 - a. How is this assured?
- L. Are detailed medical records required (including purchase records and broken needle records)?

Biosecurity and Disease Control

- A. Does the scheme require the creation of a biosecurity plan?
- B. Does the scheme check adherence to the biosecurity plan?
- C. Does the scheme require updating of the biosecurity plan?
- D. Does the scheme require a known health status for animals brought onto the farm?
- E. Is there a record of people, vehicles and machinery entering the farm?
- F. Does the scheme require appropriate cleaning material to be available on-farm?

Livestock Transport

- A. Is there a maximum permitted journey time?
- B. Is there a maximum permitted journey distance?
- C. What assurance requirements are there for vehicles/companies which are permitted to transport animals?
- D. Is there a requirement for assured transport throughout the lifetime of the animal?
- E. What are the conditions in which animals can be transported?
- F. Is water/feed available during transport?
- G. Is there a maximum/minimum stocking density during transport depending on species?

- H. Are there speed recommendations during transport?
- I. Are drivers aware of good animal welfare principles and are they effectively trained or certified?
- J. Is certification and documentation in place?

Vermin Control

- A. Is a plan to control vermin required by the assurance scheme?
- B. Are actions other than baiting required to prevent vermin infestation?
- C. Is a site survey required on at least an annual basis?
- D. Is an environmental risk assessment required prior to bait laying?
- E. Are dead/trapped vermin disposed of regularly?
- F. Are there requirements in place to ensure that non-target animals do not have access to baits?
- G. Is permanent baiting prohibited?
- H. Are product label directions followed during use?
- I. Is a COSHH assessment required?

Fallen Stock

- A. Does the scheme require regular checks for fallen stock?
- B. Are carcass storage methods acceptable?
- C. Are carcass disposal methods acceptable?
- D. Are on-farm disposal facilities acceptable?

Environmental Protection

- A. Are pesticides stored correctly?
- B. Are pesticides applied correctly?
- C. Are pesticides disposed of correctly?
- D. Are fertilisers stored correctly?
- E. Are fertilisers applied correctly?
- F. Are slurries and manures stored correctly?
- G. Are slurries and manures applied correctly?
- H. Are other potential contaminants dealt with appropriately?

Appendix 2. Reasoning behind weightings awarded

Country Weightings

Heading	England Weighting	Australia Weighting	New Zealand Weighting
Traceability, documentation and assurance	100	100	100
Provision of appropriate traceability and assurance was viewed as equally important in each country and consequently equal weightings were awarded to each one.			
Personnel	100	100	100
Provision of a safe working environment, with good provision of training was viewed as equally important in each country and consequently equal weightings were awarded to each one.			
Food safety	100	100	100
The provision of safe food was viewed as equally important in each country and consequently equal weightings were awarded to each one.			
Housing & shelter	100	50	50
Different weightings were applied to each country within the Housing & Shelter category. In England, some cattle can be permanently housed, and the majority of other cattle are housed for several months per year, as are some sheep. This means that housing design and maintenance is proportionally more important in England than in Australia or New Zealand, where animals are rarely housed. Australia is subject to more extreme weather than either England or New Zealand, and while housing is less important than in England, the provision of shade or shelter (particularly from hot sun) is important. New Zealand rarely houses animals and does not experience extreme weather, and so this section was awarded a lower weighting.			
Feed and water	100	100	100
The provision of appropriate amounts of fresh feed and water is equally important in each region and therefore equal weightings have been awarded.			
Husbandry procedures	100	100	100
It was agreed that husbandry procedures were equally important in each country			
Youngstock management	100	100	100
Care for youngstock is equally important in each region and therefore equal weightings have been awarded.			
Animal health and welfare	100	100	100
The management of animal health and welfare is equally important in each region and therefore equal weightings have been awarded.			
Animal medicines	100	85	85
It was recognised that, in England, animals tend to be more closely managed and are more likely to be treated with a medicine. As a result, England has been awarded a slightly higher weighting for this category.			
Biosecurity and disease control	100	90	100
The more extensive nature of Australian farming means that there is a slightly lower risk of disease transfer from farm to farm. Consequently Australia has been awarded a slightly lower weighting in this section than England or New Zealand.			
Livestock transport	100	160	100
Conditions during transport were recognised as being considerably more important in Australia than in either England or New Zealand. This is because these two countries are relatively small, and most internal transport is relatively restricted in time and distance. Limited amounts of export of live animals happens from either country. However, in Australia, travel times and distances can be very large, meaning that there is a heightened importance to transport standards and the management of transport in Australia, hence the higher weighting that it has been awarded.			
Vermin control	100	70	50
Vermin control is proportionately more important where there are larger amounts of housing and storage of feed for animals (particularly cereal based feed). This means that vermin control is considerably more			

important in England than in either Australia or New Zealand, and consequently a higher weighting has been applied to England for this category.

Fallen stock	100	70	90
Management of fallen stock is proportionately more important where farms are smaller and farmed more intensively. It is also more important where there is a raised likelihood of proximity to watercourses, or to the general public. The extensive nature of farming in Australia means that there is a lower risk of this, whereas the risk is slightly higher in New Zealand and slightly higher again in England, hence the different weightings that have been applied.			
Environmental protection	100	100	100
Protection of the environment is equally important in each region and therefore equal weightings have been awarded.			

Category weightings

Heading	Relative Weighting
Traceability, documentation and assurance	200
The traceability and assurance category was awarded the highest category weighting because it was agreed to be the single most important aspect of a farm assurance scheme. Product from each farm must be traceable, and the assurance scheme must be robust and trustworthy. If this is not the case, the scheme does not offer effective assurance, hence the high weighting for this category.	
Personnel	110
The training, management and safety of farm workers is important, but a lower weighting has been awarded because this is not the main purpose of farm assurance schemes, and thus this category is of lower importance than, for instance, traceability or food safety.	
Food safety	200
Food safety is the primary reason for the creation and implementation of farm assurance schemes and hence the highest weighting has been applied to this category.	
Housing & shelter	120
Housing and shelter of animals is recognised as important for the welfare of animals, but is not the most critical component of this, hence a medium rating has been awarded to this category,	
Feed and water	150
Feed and water is vitally important to animal welfare. As a result, the second highest weighting has been applied to this category.	
Husbandry procedures	150
Husbandry procedures can have a significant impact on animal welfare. As a result, the second highest weighting has been applied to this category.	
Youngstock management	105
Youngstock management is important, but does fall under other categories within farm assurance and therefore a weighting of 100 was awarded.	
Animal health and welfare	150
Effective management of animal health and welfare has a significant impact on animal wellbeing. As a result, the second highest weighting has been applied to this category.	
Animal medicines	150
The use of animal medicines strongly impacts animal wellbeing. As a result, the second highest weighting has been applied to this category.	
Biosecurity and disease control	150
Biosecurity is important to the ongoing wellbeing of stock, through the prevention of transfer of disease. As a result, the second highest weighting has been applied to this category.	
Livestock transport	95
Livestock transport, while important, only represents a relatively short proportion of the animal's life, and as a consequence, a lower weighting has been applied.	
Vermin control	70
Vermin control does have some impact on disease transfer and food safety, but for livestock production, its impact is relatively low and hence a lower weighting has been applied.	
Fallen stock	70
Fallen stock has some impact on the overall wellbeing of flocks or herds, and on the environment around the farm, but its impact is generally fairly limited. This category has therefore been awarded a relatively low weighting.	
Environmental protection	150
Protection of the environment through the responsible use of chemicals and manures is extremely important. The implementation of good practice significantly reduces run-off and pollution events and consequently this category has been awarded a high weighting.	

Appendix 3. Table showing the principles of how scores were awarded within each category

The following table outlines the general principles which were used assist decision making when deciding on the scheme scores for each question within each category. A degree of judgement had to be applied when awarding scores, but there was very good agreement amongst the experts on the final scores awarded.

Score	Qualitative description matching each score
1	Scheme fails to address the topic of the question
2	Scheme recognises the issue, but fails to address it
3	Scheme recognises the issue and makes some attempt to address it
4	Scheme recognises the issue and addresses a minority of components but misses the majority of key details
5	Scheme recognises the issue and addresses the majority of components, but is not fully credible
6	Scheme recognises the issue and credibly addresses it, but misses out several important details
7	Scheme recognises the issue and addresses it quite well, but misses out one or two important details
8	Scheme answers the question well, and does not miss any important issues. However, it fails to address three or more minor issues
9	Scheme almost answers the question ideally, but misses out on one or two minor details
10	Scheme fully answers the question, enabling the end user to be sure that the issue is managed to a high level