



The New Zealand Dairy Herd Improvement Industry

Transfer of the Core Database and Review of
Regulatory Settings

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Information for Submitters

Written submissions on the issues raised in this discussion paper are invited from all interested parties. The closing date for submissions is 15 February 2013, 5pm.

Submissions should be directed to:

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Submissions will be considered by officials in the preparation of advice to Ministers. Specific questions have been posed to submitters, but these are only suggestions. Submissions on all issues that are within the scope of this consultation document will be considered. Submissions backed by evidence and argument will carry more weight than statements of opinion.

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1. Introduction

1. The success of New Zealand's dairy industry can be directly attributed to (among other things) New Zealand dairy farmers' historic commitment to:
 - a. generate and record information on the efficiency with which their dairy cattle produce milk; and
 - b. use this information to breed selectively to improve the genetic makeup and therefore productivity of their herds.
2. This information on the productivity of the national herd is contained in the national dairy core database (the core database). The core database is currently held by a dairy farmer owned cooperative, Livestock Improvement Corporation Ltd (LIC). The collection and use of this information are subject to the requirements of the Dairy Industry Restructuring Act 2001 (the DIRA) and the Dairy Industry (Herd Testing and New Zealand Dairy Core Database) Regulations 2001 (the Regulations).
3. In May 2012, LIC and the dairy industry good body, DairyNZ, agreed to a process to transfer a copy of the core database from LIC to DairyNZ. The intention is that DairyNZ's copy of the database would be the national core database for information on animal productivity going forward.

Scope of, and rationale for, this review

4. The purpose of this document is not to consult on the merits of the proposed transfer of a copy of the database. This has been extensively consulted on previously: by DairyNZ in 2010, by the Ministry for Primary Industries (MPI) in 2011, and most recently by LIC with its farmer shareholders.
5. Instead, this document focuses on the regulatory regime for the New Zealand dairy herd improvement industry in the future. There are two key drivers for this review:
 - a. The current regulatory requirements were designed in the context of LIC holding the core database. It is necessary to consider what regulatory requirements, if any, are needed if DairyNZ – an industry good body – holds a copy of the core database.
 - b. There have been technological developments in data collection methods and developments in genetic science since the current regulatory requirements were put in place. It is therefore timely to consider whether the current regulatory regime remains fit-for-purpose and consistent with the Government's commitment to better regulation.
6. This consultation document seeks industry feedback on potential problems and options. Critically, the document does not identify any preferred options. Instead, it seeks information on (1) the extent of any problems with the current regime; and (2) the benefits, costs, impacts, and risks of various options. Feedback to this consultation will help to inform officials' formulation of policy recommendations to the Minister for Primary Industries.

Structure of this consultation document

7. The consultation document is structured as follows:
 - a. A background section describes the role of herd improvement in the New Zealand dairy industry and describes the key services and activities that comprise the herd improvement industry;
 - b. A section on public policy objectives for the dairy herd improvement industry outlines MPI views on what those objectives are and seeks industry feedback on those;
 - c. The remainder of the document drills into specific areas of the dairy herd improvement industry and, for each area, describes (1) the characteristics MPI is seeking; (2) any problems with the current situation or status quo; and (2) potential alternatives to the status quo. Specific questions are included, to which MPI is seeking feedback to inform its analysis of both the magnitude and nature of problems and the practicality and implications of the potential options.

2. Background

Importance of herd improvement for the New Zealand dairy industry

8. The efficiency with which dairy cattle produce milk varies among dairy cattle. Part of this variation is genetic in origin; improved milk production is therefore transmissible to progeny (or offspring). Herd improvement through genetic gain can therefore be a powerful tool to improve the profitability and productivity of the national dairy herd.
9. The value of herd improvement through genetic gain has been recognised by the New Zealand dairy industry and backed by dairy farmers' historic commitment to test their dairy herds and breed selectively to improve the genetic makeup and therefore the overall productivity of the dairy industry in New Zealand.
10. Recent industry studies show that the past decade has seen significant growth in milksolids per cow and that about two thirds of the improvement in cow performance over this period can be attributed to the genetic improvement in the cows¹. This equates to an estimated growth in milksolids through genetic gain of 1.3 percent per year.
11. As described in greater detail below, an industry database is fundamental to the ability of the dairy industry to achieve this herd improvement. It enables industry participants to identify productive animals, from which to selectively breed, to realise genetic gain.

The New Zealand dairy herd improvement industry

12. The following section outlines the key services and activities provided by the New Zealand dairy herd improvement industry and sets out the main aspects of the current regulatory regime. A diagram towards the end of this section illustrates the various services and activities and the flow of data/information within the industry.

Herd testing

13. Herd testing refers to the analysis of milk production and composition from individual cows. Information collected through herd testing is recorded alongside other herd records, including information relating to mating, calving, animal health and other information on a farmer's dairy herd. A herd tester will maintain these records on behalf of farmers.
14. Information collected through herd testing helps a farmer identify the most productive animals within their herds and is valuable for helping farmers make decisions on mating, culling and selection of replacements. This information also helps artificial breeders identify which sires will contribute most to the rate of genetic gain (discussed below under heading "Artificial breeding and animal evaluation").
15. Although herd testing has never been compulsory for New Zealand dairy farmers, the provision of herd testing services is a regulated activity. This regulation dates back to the 1934 Royal Commission into dairying which determined that the collection and analysis of production data was fundamental to improving dairy farmer profitability. The first herd testing regulations were enacted in 1936 and reviewed in 1958. The purpose of these earlier regulations was to ensure that that the data generated through herd testing met

¹ DairyNZ Economic Farm Surveys show that the past decade has seen annual growth in milksolids per cow of 1.7% per year and that two thirds of this improvement can be attributed to cows' genetic improvement.

certain quality standards so that an accurate representation of the genetic merit of the tested animals could be drawn.

16. Herd testing activities were also subject to a licensing regime. Prior to the disestablishment of the New Zealand Dairy Board in 2001, LIC was the only entity in New Zealand holding a dairy herd testing licence.
17. The changes to the regulation of the dairy industry in 2001 carried over the purpose of the original regulations but introduced contestability in dairy herd testing services through the regulation of a practice standard and the certification of herd testers. In particular, the Dairy Industry Restructuring Act 2001 (the DIRA) and Dairy Industry (Herd Testing and New Zealand Dairy Core Database) Regulations 2001 (the Regulations) provide that anyone can undertake regulated² herd testing in New Zealand subject to them being certified. Certification requires meeting the herd testing standard³, which sets out procedures and practices that must be adopted by herd testers and, in doing so, ensures the data that results from herd testing is of sufficient quality. The Regulations also compel certified herd testers to supply herd testing data to LIC for input into the national database so that the data are captured for the benefit of the New Zealand dairy industry.
18. Although LIC continues to be a dominant provider of herd testing services in New Zealand, another company, CRV Ambreed, has since entered the herd testing market in New Zealand.

National dairy core database (core database)

19. The information contained in the core database represents data collected pursuant to herd testing regulations dating back to 1936. Throughout this document, the reference to either the “core database” or “core data” refers to this set of data. However, the core data represents only a subset of the data collected in the herd improvement industry. Over and above the regulatory requirements, herd testing and artificial breeding companies collect and maintain, for commercial purposes, a wider set of data.
20. The purpose of the core database is to facilitate herd performance recording and enable research and animal evaluation of the genetic productive potential of the national herd. It allows data users to relate information on the characteristics and performance of a particular animal to information on the genetic lineage of that animal. The data is also used for wider research purposes.
21. The core database has distinctive industry good characteristics. Information provided to the database by individual dairy farmers enables all dairy farmers in New Zealand (not just those who provided the information) to improve the genetic makeup of their animals by using the information in the database to selectively breed more productive animals. Moreover, an individual farmer improving the genetic makeup of their own animals has long term spillover benefits for the national herd. Therefore, the benefits of the data will extend beyond any one user of the data. This is known as a positive externality, which tends to imply that, without some form of intervention (regulatory or otherwise), commercial drivers will be insufficient to ensure that the optimal amount of data is collected, maintained, and available for access by other users.

² In the Regulations, regulated herd testing is defined as the operation of testing the milk of milk cows in any 2 or more herds that are the property of different persons for the purpose of recording the production of individual cows within those herds in respect of milk or components of milk.

³ The development of this practice standard, the ‘herd testing standard’, is governed by the Standards Act 1988.

22. The DIRA vested the custodian role for the core database in LIC. Recognising the industry good characteristics of the database, and recognising that LIC is a commercial player in herd testing and artificial breeding, the DIRA included a number of protections and requirements. Firstly, the DIRA requires LIC to retain and operate the core database⁴ and stipulates that if LIC was wound up, the core database would revert to the Crown until ongoing arrangements can be made for it to be taken over by a dairy industry body. Secondly, the DIRA provides for an access regime to ensure that LIC, being a commercial entity, does not gain a commercial advantage over its competitors in the herd testing and artificial breeding markets by restricting access to the core database.
23. The core database currently comprises 46 fields of data concerning the production and ancestry of the New Zealand dairy herd and forms part of LIC's much broader dataset comprising some 18,500 data fields.

Artificial breeding and animal evaluation

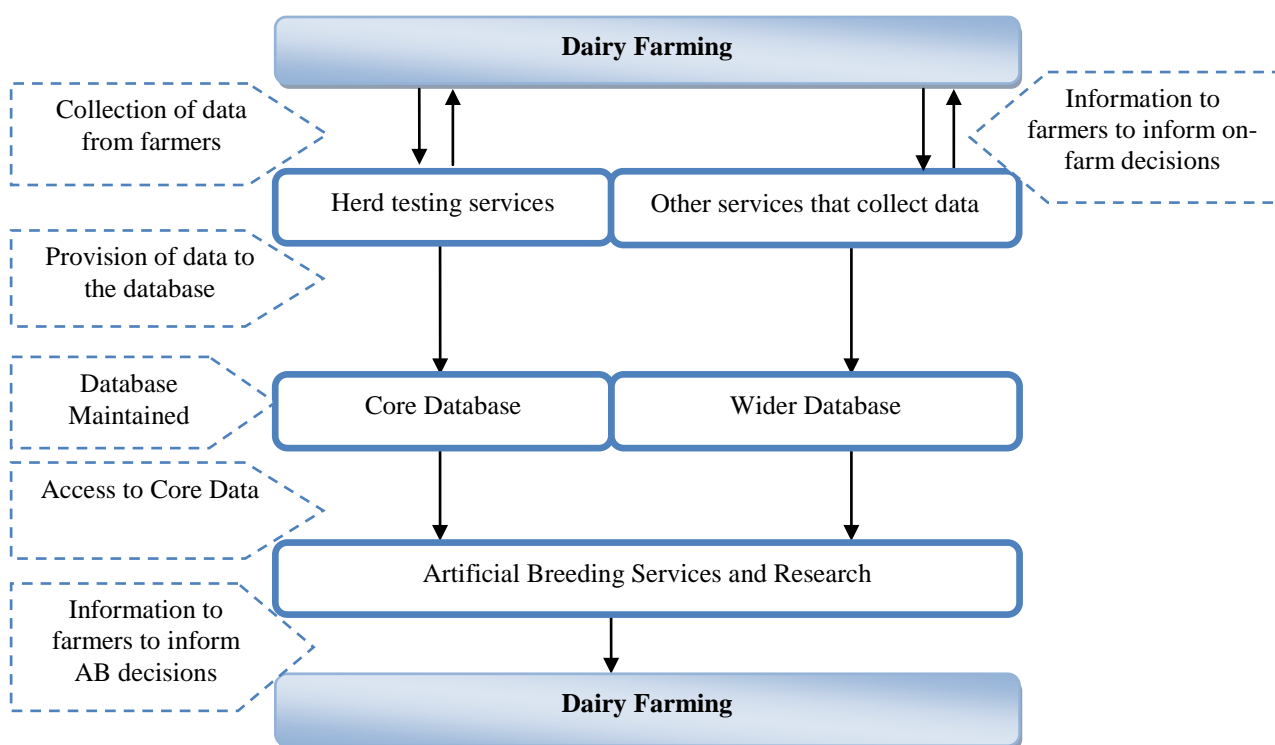
24. Artificial breeding services refer to the provision of semen from bulls of high genetic merit for the insemination of dairy cows. Artificial breeding is a fundamental feature of the New Zealand dairy industry; in 2011 approximately 73 percent of New Zealand's dairy cows were the result of artificial breeding⁵.
25. A key part of the artificial breeding service is bull proving. This involves using the herd performance data contained in the core database to select young bulls from top cows (generally cows with high production and a good genetic lineage) to artificially breed productive replacements from. The genetic quality of these bulls is then proved through the performance of their progeny, with herd performance data acting as an evidence base for this.
26. There are currently a number of artificial breeding companies operating in New Zealand, with the key ones being LIC and CRV Ambreed.
27. Animal evaluation refers to the ranking of dairy animals. Artificial Breeding companies may employ their own methods for ranking animals. In addition, the dairy industry maintains a system for determining and reviewing the National Breeding Objective (NBO). The objective is to identify animals whose progeny will be the most efficient converters of feed into farmer profits. The NBO is governed by a subsidiary of the dairy industry good body, DairyNZ and is not subject to government regulation.
28. Bulls enrolled in the NBO are assigned a Breeding Worth (BW) reflecting the sum of a selection of weighted performance variables of key traits which have been identified as important for the NBO.

⁴ Unless a Ministerial consent is obtained to relieve LIC from this obligation.

⁵ New Zealand Dairy Statistics 2010-11 (Published 2011, DairyNZ and LIC)

Illustration of industry activities and flow of information

29. The diagram below illustrates the key services and activities provided by the New Zealand herd improvement industry. The arrows depict the flow of data/information within the industry.



Industry agreement to transfer a copy of the core database

30. In May 2012, LIC and DairyNZ, agreed to a process to transfer an up-to-date copy of the core database from LIC to DairyNZ. This agreement followed a recommendation made in 2009 by the DairyNZ appointed ‘Anderson Committee’⁶ which recommended that the core database be transferred to an independent, non-competing industry good entity, acknowledging the benefits that would arise from transparent independence of the core database.

31. The transfer would grant DairyNZ a copy of all data pertaining to the 46 core data fields. Going forward, LIC’s and DairyNZ’s intention is that the DairyNZ copy of the database would be the core database. That is, all herd testers would be required to provide data to DairyNZ for inputting to the core database. Any regulatory requirements relating to the maintenance of the core database and access to the core database would apply to the database held by DairyNZ.

⁶ New Zealand Dairy Herd Improvement Database Review, Anderson Committee Report, Commissioned by DairyNZ 2009

3. Public policy objectives for the herd improvement industry

32. In light of the industry proposed transfer of a copy of the core database from LIC to DairyNZ, it is both necessary and timely to revisit the current regulatory regime and the public policy objectives for the herd improvement industry in New Zealand.

33. MPI considers that the overarching public policy objective is to ensure that:

**The New Zealand dairy industry is able to realise optimal genetic gain
in the national dairy herd.**

34. The role of government in achieving this objective is one of enabling, in particular through setting a fit-for-purpose regulatory regime, which ensures that:

- a. The core database is populated, maintained, and accessed for the overall benefit of the New Zealand dairy industry. The core database is fundamental to the ability of industry participants to identify productive animals to selectively breed from to realise optimal genetic gain.
- b. The herd testing and artificial breeding markets operate efficiently so that the firms operating in these markets are incentivised to innovate and invest in new ways of driving genetic gain in the national dairy herd. MPI considers that efficiency can be achieved by ensuring that there are low barriers to entry such that competition can occur.

35. The above government objectives could be met through a number of different means, which may or may not involve regulatory intervention. Intervention by government can generally be justified only when there is a problem or potential problem that is either unlikely to be solved in any other way, or inefficient or ineffective to solve any other way.

Questions for submitters: Public policy objectives

1. Do you agree/disagree with the above proposed public policy objectives, and for what reasons?
2. What additional objectives, if any, do you think should be considered, and what for reason?

4. Identification of Issues and Options

36. The remainder of this document drills further into specific areas of the New Zealand dairy herd improvement industry, as follows:

1. The collection of data and provision of data to the core database.
2. The maintenance and protection of the core database.
3. Access to core data.
4. The provision of information on breeding merit to farmers.

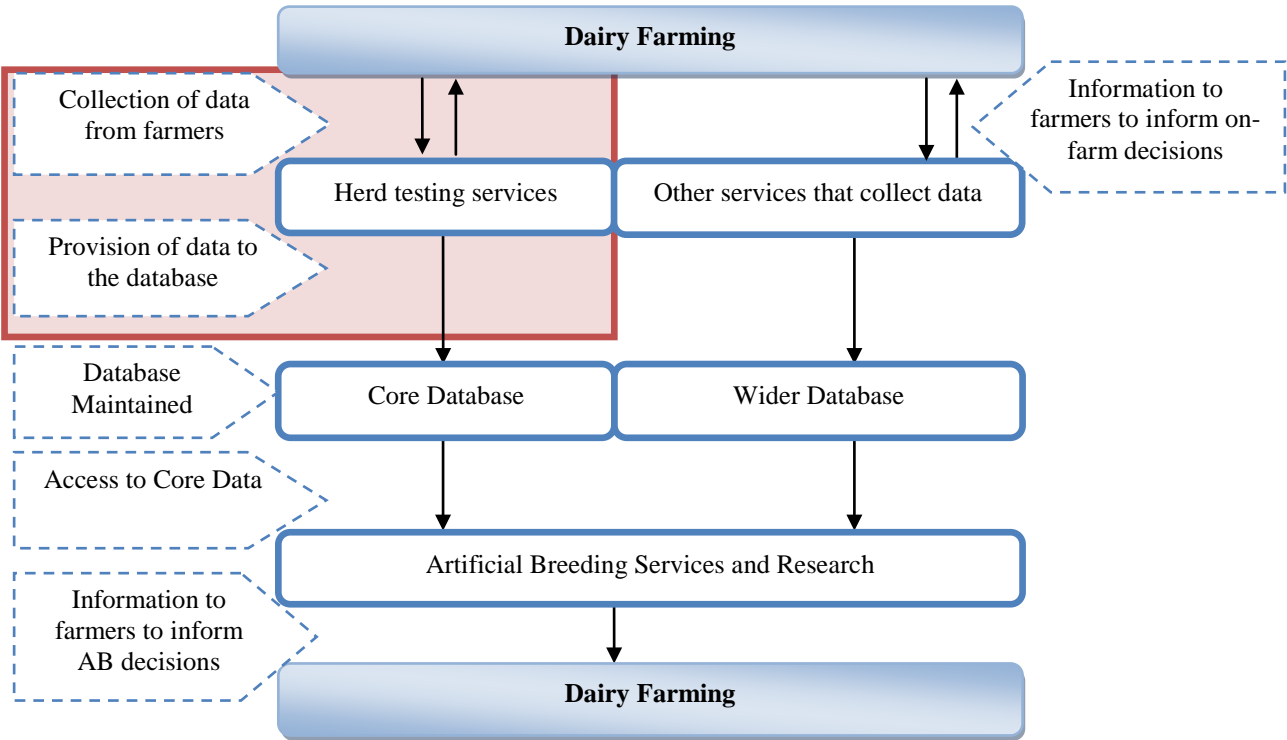
37. For each area, this document:

- Describes specific characteristics that would support the achievement of the objective above, (that is, optimal genetic gain through ensuring that the value of the core database is realised and that herd testing and artificial breeding markets operate efficiently).
- Outlines MPI's view of how close the current situation is to achieving those characteristics and seeks further information from industry and other stakeholders in relation to potential problems, if any, with the current situation.
- Describes potential variations to the current situation, such as different approaches to regulation, and seeks feedback on the feasibility, pros, cons, and risks of these options.

4.1. The collection of data and provision of data to the database

38. As illustrated by the red box in the diagram below, this section drills into the regulatory regime relating to the collection of data from farmers and the subsequent provision of data to the core database. This section is structured as follows:

- It describes the characteristics that MPI is seeking to achieve in relation to the collection of data and provision of data to the core database;
- It then considers, in turn, (1) data collection methodologies; (2) the range of core data; and (3) farmers’ access to herd testing services. For each category, this section describes the current regulatory regime, identifies potential problems with the current regime, and presents potential options.



CHARACTERISTICS SOUGHT

39. MPI considers that the following characteristics are necessary in order to achieve optimal genetic gain for the New Zealand dairy herd:

- Quality of data:** The data provided to the core database must be accurate; MPI understands that the accuracy of core data is fundamental to the concept of the core database. Without accurate core information going into the core database, breeding decisions may be being made based on incorrect information. All else equal, this would be harmful to the genetic gain of the national herd.
- Quantity of data:** there must be sufficient data such that the number of “active cows” is contributing to the optimal long run genetic improvement of the dairy herd (see box text below: the role of the “active cow population”). There may be a role for Government in ensuring sufficient quantity of data because the benefits of generating herd performance data are non-excludable; that is, farmers who do not contribute to the core database (i.e. who do not procure herd testing services) may still reap the

benefits associated with that data (i.e. through procuring artificial breeding services). This may lead to an insufficient quantity of data being provided to the database.

The role of the active cow population

The active cow population refers to the number of cows eligible for consideration as bull dams. These cows must be well recorded with significant official ancestry data.

Increasing the rate of genetic gain in the New Zealand dairy industry is directly linked to increasing the number of cows considered as 'active', as these are the only cows that contribute genetic material to the next generation of bulls eligible for progeny testing. A larger active cow population increases the selection pressure that can be applied in determining which sons should make up the next generation of bulls.

- iii. **Range of data:** The data that is required to be collected and provided to the core database must cover the *optimal* range of data-fields. Optimal covers two interrelated concepts:
 - a. The data-fields must be relevant. In other words, the data-fields must be those that are useful for herd improvement or research purposes. Additional data-fields, if irrelevant, will be adding additional cost for no real benefit.
 - b. The benefit of including a data-field must be greater than the cost of requiring that the data be verified and provided. This may mean, for example, that even if a field is 'good-to-have' for herd improvement purposes, it may not be the best outcome to require all herd testers to provide it because of the high costs of ensuring the accuracy of the data.
- iv. **Efficiency of herd testing:** The herd testing market should be efficient and contestable, thereby driving innovation and investment. This means that, subject to meeting the minimum accuracy requirements:
 - a. there are low barriers to entry, such that there is a genuine threat of competition;
 - b. the most cost-efficient technologies and methodologies are able to be utilised.

REGULATION OF DATA COLLECTION METHODOLOGIES

The current regulatory regime

40. The current regulatory regime includes the following requirements, designed to ensure the accuracy and coverage of data:
 - The Regulations state that no person may undertake regulated herd testing unless they are a certified herd tester. Regulated herd testing is defined as the operation of testing the milk of milk cows in any 2 or more herds that are the property of different persons for the purpose of recording the production of individual cows within those herds in respect of milk or components of milk.
 - The Herd Testing Standard, commissioned by MPI, sets out the equipment and methods that must be used by herd testers in sampling, measuring, and analysing milk, and supplying data to the database.

Problems, if any, with the current situation

41. MPI understands that the current regime, whereby herd testers must be certified, is achieving the required level of data accuracy.
42. Similarly, MPI understands that there are no problems with the current requirement that certified herd testers must provide data to the core database. We understand that this helps to ensure the necessary quantity of data, in terms of coverage of the national herd.
43. There is a question of whether automated technologies could substitute for traditional herd testing services, both for informing farm management decisions and, if the data is sufficiently accurate, to collect data for provision to the core database. The Herd Testing Standard is currently drafted based on the 'traditional' approach to herd testing (as distinct to milk and cow testing utilising automated technologies). This could be having the following impacts:
 - a. It could be impacting on the efficiency of the herd testing market. For example, herd testers may be prevented from providing their services at lower cost, and potential competitors, who would enter and compete if the Standard allowed for a wider scope of collection methods, may be prevented from entering.
 - b. It could be the case that data are being collected from farms, using non-traditional methods of data collection, but that these data are not being provided to the core database (since the methods of data collection are not captured by the Herd Testing Standard). Indeed, MPI understands that in recent years there has been a significant increase in the uptake of on-farm automated milk and cow testing equipment and an associated decrease in the procurement of traditional herd testing services (see box text below: the impact of technological developments in cow and milk testing).

The impact of technological developments in cow and milk testing

Farmers traditionally procure herd testing services in order to better understand the performance of their herd and, on this basis, make farm management decisions (e.g. culling and breeding decisions).

In recent years there has been a significant increase in the use of automated on-farm technologies, which is increasingly allowing farmers to generate their own data to make farm management decisions. Over time this could remove the need for some farmers to herd test, and thereby reduce the amount of data which flows to the core database. Indeed, herd testing has declined in recent years from 84 percent of cows in 2001 to 70 percent of cows in 2011. MPI is seeking feedback on the extent to which this decline is linked to the uptake of new technologies (or other factors).

Other potential options

44. Depending on whether any problems are identified with the current regime, and the nature of any such problems, alternative options along the following lines could be considered:

Alternative option: revoke the government-led Herd Testing Standard

45. This option would involve revoking the Herd Testing Standard and removing the current regulatory requirement for herd testers to be certified. It would be the industry's responsibility to collaborate to determine how data gets to the database and to set any industry standards in relation to that data. This option is unlikely to be favoured given the fundamental importance of the accuracy of the data.

Alternative option: amend the Herd Testing Standard to incorporate a wider scope of technologies/ methodologies

46. Under this option, the scope of the Herd Testing Standard, which sets out the equipment and methods for testing milk, would be expanded to include a wider scope of technologies/ methodologies. Once a technology is included in the Herd Testing Standard, persons who collect data from two or more farms using this technology will come under the definition of a herd tester and be bound by the associated regulations. This option is, in effect, a variant on the status quo (since the standard can be amended through a review process without changing the legislation or regulations) and significant work has been done already towards revising the Standard to consider new technologies. However, MPI would welcome feedback on whether industry participants consider there have been any barriers preventing the Herd Testing Standard being reviewed and amended.

Alternative option: amend the Regulations to allow for, but not mandate, data from a wider scope of technologies/ methodologies

47. Under this option, the current system of certified herd testing would remain. In addition, individuals and/or companies could apply to be certified as "data partners" to be able to verify data and contribute data to the core database. The Herd Testing Standard and the Regulations would differentiate herd testing and data partners, with the former being parties who use traditional herd testing methodologies and the latter relying on the automated testing of milk. The Herd Testing Standard would set out the acceptable equipment and methods for automatically testing milk in order to qualify as a data partner. Becoming certified as a data partner could be optional (i.e. a farmer or company could continue to use the technologies without a requirement to become certified and to provide data to the database).

Questions for submitters: Data collection methodologies

MPI is seeking any feedback you may have on the magnitude and nature of the problems in this area and the practicality and implications of the types of options presented above. In addition, some specific questions are as follows:

3. Is the Herd Testing Standard ensuring the accuracy of core data and is it necessary?
4. Do you consider that continuing to require certified herd testers to provide core data to the database is necessary to ensure a sufficient quantity of data?
5. Is there a risk that new technologies will, over time, lead to a significant decline in demand for traditional herd testing services? Has this been the cause of the recent decrease in demand, or have other factors (e.g. financial considerations) contributed to the decline?

6. Can automated technologies be a substitute for traditional herd testing services, both for informing farm management decisions and to collect data for provision to the core database?
7. Will (or has) technology develop(ed) such that farmers could undertake their own herd testing in compliance with the quality standards for provision of data to the database?
8. If alternative technologies exist that are sufficiently accurate, what barriers have prevented the Herd Testing Standard being amended to incorporate these (while recognising that significant work has been undertaken towards revising the Standard)? Do you perceive there to be any regulatory or legislative barriers to doing so?

REGULATION OF RANGE OF DATA

The current regulatory regime

48. Currently, the DIRA provides for regulations to be made specifying the information that must be provided for entering into the core database. Schedule 2 of the Regulations specifies 46 data fields which every certified herd tester must collect and supply to LIC for entering into the core database. The core data fields are set out in Appendix A.

Problems, if any, with the current situation

49. MPI understands that the 46 core data fields are currently only a subset of the data collected within the herd improvement industry. Anecdotally we understand that around 350 key fields are currently monitored in the industry for herd improvement purposes. These fields include data gathered through herd testing, as well as other data, including data on traits other than production (or 'TOP data'). MPI understands that TOP data are contributed by Breed Societies.
50. Although a wider data set is used for herd improvement purposes – and therefore we can infer that more than 46 fields are useful for herd improvement purposes – it may still be the case that the 46 fields are the optimal fields to regulate (i.e. to mandate the provision and quality of). As discussed above, the optimal core data fields are those which:
- are useful for herd improvement purposes; and
 - the benefits of including the data-fields outweigh the costs of mandating the collection and verification of the associated data.
51. It may therefore be the case that, as long as the 46 data fields are provided on a widespread and accurate basis, the value of the database in accurately identifying high performing animals is retained. Individual companies retain the ability to supplement the core data with additional data fields. However, requiring the provision and verification of that additional data by all certified herd testers may impose unnecessary costs on the industry.
52. On the other hand it may be the case that the 46 fields, which were selected at the time the Regulations were put in place, have been superseded. If, indeed, that is the case then a key question is why the Regulations have not been updated in the interim. It could be due to the regulatory process being viewed as an obstacle, or it could be due to a collective action problem (where the industry have failed to reach an agreement on change).
53. MPI is therefore seeking feedback on whether the 46 data fields remain the optimal data fields (based on the definition above), and if not, why the fields haven't been updated.

Other Options

54. Depending on whether any problems are identified with the current regime, and the nature of any such problems, alternative options along the following lines could be considered:

Alternative option: empower DairyNZ to set data-fields in consultation with industry.

55. Under this option, the Regulations would cease to specify the data-fields, but would require DairyNZ to review and set, in consultation with industry, the data that must be provided to the database. This option therefore places responsibility on industry for ensuring that the data fields are the optimal fields. This option may be preferred if the process for amending regulations has been viewed by industry as an obstacle to updating the data-fields.

Alternative option: amend the set of data-fields in the Regulations.

56. Under this option, the Regulations would prescribe a different (either expanded or reduced, depending on feedback) set of information that must be submitted to the database. For example, it might be possible to more closely reflect the information used in calculating breeding indices (e.g. the National Breeding Objective). It has the benefit, over the status quo, of the core data fields being updated to reflect the data most relevant to genetic gain taking into account technological and scientific advances since the regulations were put in place. Feedback is sought on whether the data fields would benefit from being updated.

Questions for submitters: Range of data

MPI is seeking any feedback you may have on the magnitude and nature of the problems in this area and the practicality and implications of the types of options presented above. In addition, some specific questions are as follows:

9. Are the 46 data fields still the “optimal” data fields for the purpose of requiring that all certified herd testers verify and provide the associate data to the database?
10. If the 46 fields have been superseded, what barriers have prevented Schedule 2 of the Regulations being amended to reflect the optimal data fields?
11. What would be the potential risks, costs, and benefits of removing the regulated list of data fields and, instead, empowering DairyNZ to set the data fields in consultation with industry?
12. If the 46 fields are no longer the optimal fields, what additional or different fields would you want to include and why? Do you have any evidence that the value of including any such additional fields outweighs the costs of verifying and providing the data?

REGULATION OF ACCESS TO HERD TESTING SERVICES

The current regulatory regime

57. The Regulations require LIC to provide herd testing services to any dairy farmer in New Zealand who requests those services. The Regulations also require LIC to charge uniform prices within a region. Recognising that LIC was the only certified dairy herd tester at the time these requirements were introduced, they were likely designed to ensure:
- a. that all farmers in New Zealand, including those in remote locations, would have access to herd testing services (thereby supporting the objective of there being a sufficient quantity of data); and

- b. to act as a protection for farmers given LIC's dominant market position, then holding 100% of the herd testing market (thereby supporting the objective of an efficient herd testing market).

Problems, if any, with the current situation

58. The industry has changed significantly since the nationwide herd testing and regional pricing requirements were put in place. For example:
 - Herd testing is now contestable, in that anyone can undertake dairy herd testing in New Zealand subject to them being certified.
 - LIC is no longer the only certified herd tester.
 - Farming areas considered 'remote' ten years ago, may not be considered remote today given the expansion of dairying in the last ten years.
59. There is therefore a question of whether the same concerns remain that necessitated the nationwide herd testing and regional pricing requirements. For example, whether concerns remain that, without such requirements, herd testing services would be unavailable to some farmers (or available but at prohibitive prices).
60. If commercial forces are now sufficient – i.e. if we are confident that competition can emerge – then the regulatory requirements may be imposing unwarranted costs on the industry. For example, the requirement for regional pricing, in effect, involves farmers in easy to reach locations subsidising farmers in hard to reach locations. The requirements may also be impeding pricing signals to potential competitors regarding where entry is profitable.
61. MPI is therefore seeking to understand what, if any, barriers are preventing competition in the herd testing market. For example, once DairyNZ holds a copy of the core database, what, if any, barriers to competition remain such that a firm could not or would not enter the market in the event that LIC increased its price for herd testing services to certain farmers.

Other Options

62. Depending on whether any problems are identified with the current regime, and the nature of any such problems, alternative options along the following lines could be considered:

Alternative option: remove requirements on LIC to provide nationwide herd testing at regional prices

63. Under this option, LIC would not be subject to any requirements relating to where it undertakes herd testing and the price it charges. LIC may choose to continue to provide nationwide services, but it would not be a regulatory requirement. This option may be preferred if feedback and evidence received in response to this consultation suggests that commercial drivers are now sufficient to ensure fair and widespread access to herd testing services.

Alternative option: require all certified herd testers to provide nationwide herd testing at regional prices

64. Under this option, anyone certified as a herd tester would be required to offer their services nationwide and offer uniform regional prices. However, this option is likely to impose a significant barrier to potential entrants who are likely to be small players and

hence unable to provide such a breadth of service. Given the importance of a credible threat of entry for incentivising efficient outcomes, this option is not likely to be preferred.

Alternative option: require LIC to provide nationwide herd testing services but remove any pricing requirement

65. Under this option, LIC would continue to be required to provide nationwide herd testing services, but would not have any regulatory constraint on how it priced its services. This option would continue to ensure that all farmers have access to herd testing services. Removing the requirement for regional pricing would remove what is, in effect, a requirement for farmers in easy to reach locations to subsidise farmers in hard to reach locations. There is a risk that, if competition is limited and there are barriers to new firms competing, this would lead to prices being set at prohibitive prices in certain locations, impacting on the uptake of herd testing services and, in turn, on the quantity of data.

Questions for submitters: Access to herd testing services

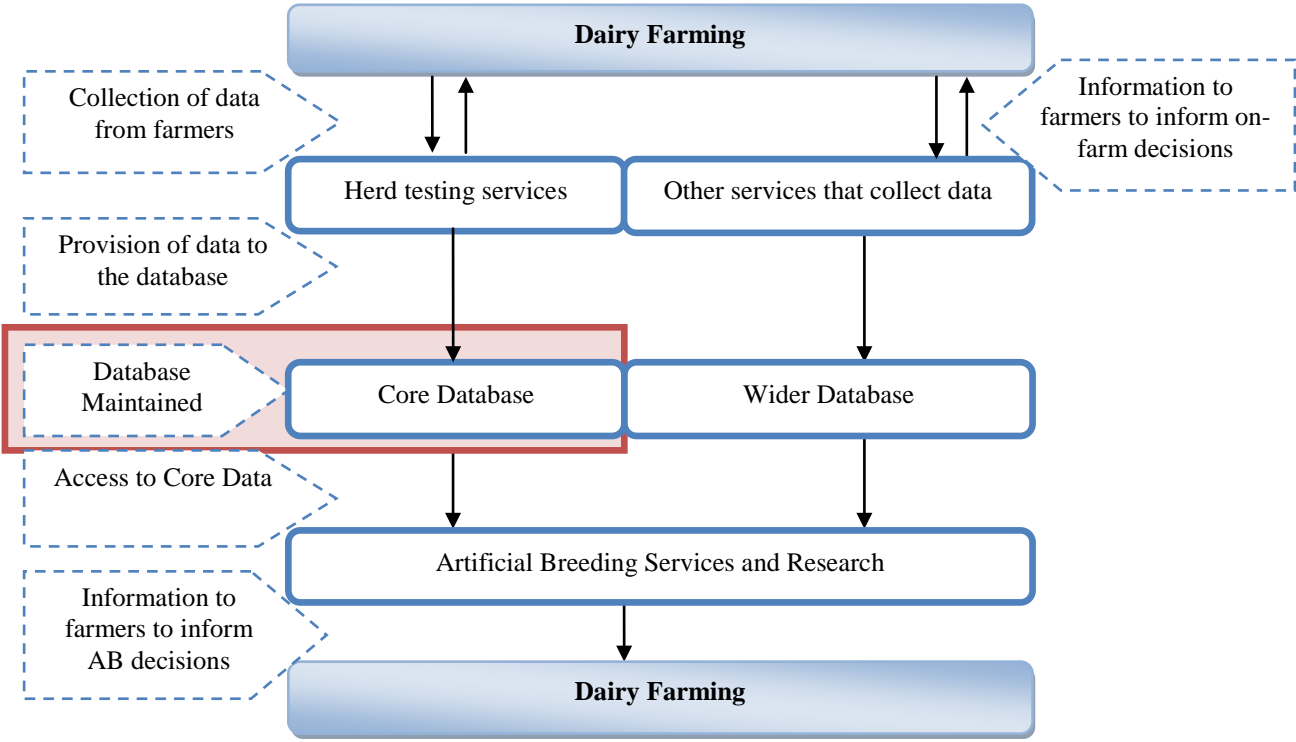
MPI is seeking any feedback you may have on the magnitude and nature of the problems in this area and the practicality and implications of the types of options presented above. In addition, some specific questions are as follows:

13. How have changes in the industry impacted on the rationale for requiring nationwide herd testing services?
14. Do all farmers in New Zealand currently have access to more than one herd testing provider, or is competition limited to specific geographic areas?
15. What are the barriers to firms competing in the herd testing market? Will such barriers reduce in the event that DairyNZ holds and manages a copy of the core database?
16. Does the regional pricing requirement impede efficient pricing signals to potential competitors?
17. What are the benefits and costs of (1) requiring LIC to offer herd testing services to any farmer in New Zealand; and (2) to charge the same price within a region.

4.2. Maintenance and Protection of the Database

66. As illustrated by the red box in the diagram below, this section drills into the regulatory regime relating to the maintenance and protection of the core database. This section is structured as follows:

- It describes the characteristics that MPI is seeking to achieve in relation to the ongoing maintenance of the database;
- It then describes the current regulatory regime, identifies potential problems with the current regime, and presents potential options.



CHARACTERISTICS SOUGHT

67. MPI considers that the governance arrangements or other regulatory requirements in relation to the core database must ensure that **the core database is maintained, protected, and developed for as long as it holds value as an industry asset.**

68. The Government may have a role in ensuring the database is maintained and protected because of the “public good” aspects of data on herd improvement. In particular, use of the data has aspects of non-rivalry (the use of the data by one party does not diminish the value of the data to other parties) and non-excludability (it is impossible to prevent non-payers from receiving the related benefits that arise from the use of the data since the use of the data contributes to the genetic merit of the national herd). Given the spillover benefits of one user accessing the data, too few people may be willing to pay for the data and, therefore, there may not be adequate incentives for a private supplier to maintain the core database.

REGULATION FOR THE MAINTENANCE AND PROTECTION OF THE DATABASE

The Current Regulatory Regime

69. LIC currently holds the core database. The DIRA includes provisions requiring LIC to provide for the retention of the core database in its constitution. The DIRA also includes provisions with the effect that the core database reverts to the Crown in the event of LIC being wound up, until ongoing arrangements can be made for it to be taken over by a dairy industry body.

Problems, if any, with the current situation

70. MPI understands that the database has been well maintained and developed under LIC ownership and therefore considers the regime has worked well.

71. The provisions that currently apply to LIC could be amended to apply to DairyNZ in the event that a copy of the core database is transferred. For the purposes of this discussion paper, the application of these safeguards to DairyNZ is considered to be the status quo. A key question is, therefore, whether these current provisions are sufficient and necessary in the context of DairyNZ ownership of the core database.

72. On the one hand, the provisions could be overly prescriptive in the context of DairyNZ ownership. As an industry good organisation, accountable to levy payers, DairyNZ has the mandate and incentives to operate for the good of the dairy industry. It could therefore be a reasonable assumption that the core database would be maintained, developed, and protected without the need for regulatory safeguards.

73. On the other hand, the fact that DairyNZ is a levy funded body under the Commodity Levies Act means that it could be wound up by industry agreement. It may therefore remain as important as ever to ensure regulatory safeguards remain in place to ensure the ongoing maintenance of the core database.

74. Moreover, the regulatory regime, which is based around the idea of regulatory safeguards rather than direct intervention, is unlikely to be adding direct costs to the industry. The mere existence of the safeguard (whether or not it is ever used) is likely to be providing certainty to industry participants in all parts of the industry, that the database will remain in place and available into the future.

Other options

75. Depending on whether any problems are identified with the current regime (that being the continuation of the current regulatory safeguards, but applied to DairyNZ), and the nature of any such problems, alternative options along the following lines could be considered:

Alternative Option: remove regulatory safeguards

76. Under this option, the Government would no longer act through regulations or legislation to ensure the protection of the core database. This would not prevent DairyNZ establishing its own safeguards, such as entrenching rules around governance and succession plans in its constitution. However, given that the regulatory safeguards do not impose direct costs to the industry but do provide certainty, this option is unlikely to be preferred.

Alternative option: make regulatory safeguards more generic

77. Under this option, the legislation would include regulatory safeguards with the effect that the core database must be maintained by a dairy industry entity (rather than specifically regulating for it to be held by DairyNZ). This option would establish requirements that the entity holding the core database must meet, regardless of who they are. This would likely involve basic requirements around governance to ensure that the entity is sufficiently independent from commercial influence (for example, guidelines for director appointments) and funding parameters to ensure continuity for the core database. While this option would be aimed at establishing an entity which could outlast DairyNZ, if it were wound up, it might be unnecessarily restrictive.

Questions for submitters: Maintenance and protection of the database

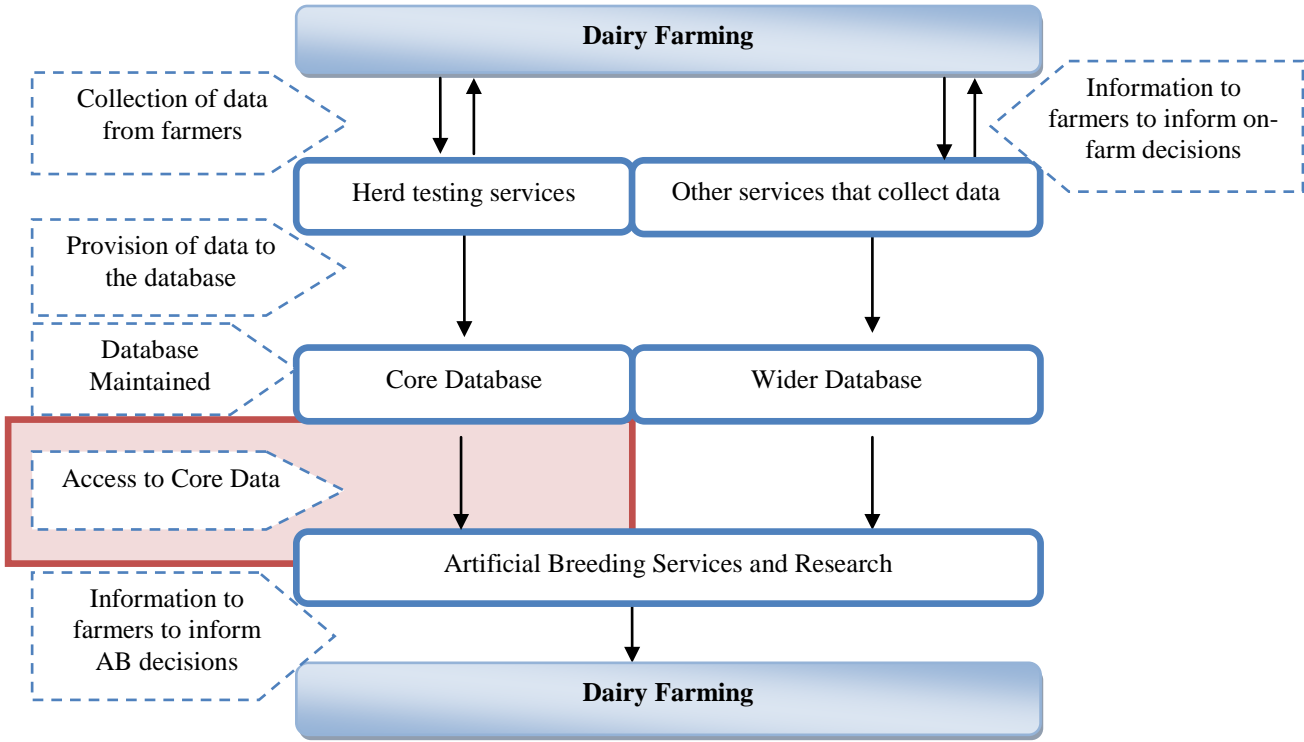
MPI is seeking any feedback you may have on the magnitude and nature of the problems in this area and the practicality and implications of the types of options presented above. In addition, some specific questions are as follows:

18. Do the current regulatory safeguards impose any costs on the industry? For example, do the safeguards prevent the development of the core database?
19. Do the current regulatory safeguards improve certainty for industry participants, including herd testing companies, artificial breeding companies, and farmers, that the core database will be available as an industry good asset into the future?
20. Are there any reasons why the current safeguards would not be applicable in the context of DairyNZ ownership?
21. What do you think would be the minimum safeguards required in the context of industry good guardianship of the core database e.g. requirements that the entity holding the database must be independent from commercial influence?

4.3. Access to Core Data

78. As illustrated by the red box in the diagram below, this section drills into the regulatory regime relating to access to core data. This section is structured as follows:

- It describes the characteristics that MPI is seeking to achieve in relation to access to core data;
- It then describes the current regulatory regime, identifies potential problems with the current regime, and presents potential options.



CHARACTERISTICS SOUGHT

79. MPI considers that the following characteristics, relating to access, are imperative to ensure that the value of the core database can be realised:

- i. **Access is provided on fair terms and to the benefit of the New Zealand dairy industry:** The database is an industry good asset, and access to the data should therefore be provided where that access would benefit the New Zealand dairy industry. Fair terms means that the same terms (e.g. method for calculating price) should be available to all parties. Fair terms are crucial for ensuring the efficiency of the artificial breeding market. In particular, access on fair terms helps to provide for contestability since the core data are often an input for companies wanting to enter and compete in the artificial breeding market. If a potential entrant cannot access the data on the same terms as existing firms, then this could be a barrier to entry.
- ii. **Terms for access and arrangements for granting access are efficient:** The price for accessing data should not prohibit firms from accessing that data where value of access outweighs any costs associated with the granting of access. In relation to the arrangements for granting access, the processes for making access decisions and granting access should be efficient.

- iii. **The confidentiality of applications for access is protected:** The process and governance in relation to considering applications for access must protect the confidentiality of the request. This is because the data requested is used by artificial breeding companies to select high merit bulls for breeding purposes; the request for data is therefore commercially sensitive. Ensuring the confidentiality of this information helps to promote efficiency in the artificial breeding market, since it provides certainty to artificial breeding companies that information on their strategic direction will not be available to their competition.

REGULATION OF ACCESS TO DATABASE

The Current Regulatory Regime

80. The Government currently regulates to ensure access to the core database. The key features of the current regulatory regime are as follows:

- LIC is prohibited from entering into exclusive access arrangements.
- An independent access panel is provided for under the Regulations and LIC must not make data available unless in accordance with a decision or determination of the panel (or to the owner of the dairy herd to which the data relates).
- The panel must grant access where to do so is in the benefit of the New Zealand Dairy Industry. The panel may grant access where to do so is not harmful to the New Zealand dairy industry.
- The panel may set terms and conditions (excluding LIC's charges) on which data in the core database must be made available, including the form and time limits within which it must be made available.
- LIC must keep information pertaining to an application to access the database confidential.
- LIC must publish the methodology it uses to set charges for access to data in the core database.

Problems, if any, with the current situation

81. The current arrangements are partly in place because LIC, as a commercial entity operating in the artificial breeding market, may otherwise have incentives to block access by its competitors.

82. There is a question of what regulatory conditions, if any, are needed in the context of industry good custodianship of the core database. If DairyNZ itself has incentives to ensure that access is provided in the interest of the New Zealand dairy industry, then the access regulations could be imposing unnecessary cost and inflexibility on the process for granting access. DairyNZ is an industry good organisation funded through levies collected under the Commodity Levies Act. With very limited exceptions, levy funds may not be spent on commercial or trading activities; DairyNZ is therefore unlikely to have any commercial incentive to block or otherwise restrict access.

83. Notwithstanding this, there may be merit in retaining regulatory requirements. For example:

- There may be benefit in retaining guidance on the criteria for granting access such that whomever is responsible for determining access has clear and objective guidance on what should drive those decisions;
- There may be benefit in retaining an independent panel for the purpose of determining access to avoid any potential for perception that access is being provided to benefit a

certain party. A perception issue, irrespective of whether or not it is borne out in practice, can impose a direct cost on the industry. For example, the perception of unfair treatment could dissuade a potential entrant from competing in the artificial breeding market;

- Although DairyNZ is an industry-good body, it may be possible for DairyNZ to set up a subsidiary company with commercial interest in the data. It may therefore be beneficial to retain independent access arrangements.

Other options

84. Depending on whether any problems are identified with the current regime, and the nature of any such problems, alternative options along the following lines could be considered:

Alternative option: regulate for DairyNZ to make access decisions subject to having regard to the benefit of the New Zealand dairy industry.

85. Under this option, the legislation and regulations would no longer regulate for an independent access panel. Rather, the legislation and regulations would require DairyNZ to establish its own systems and processes for granting access to the core database. The regulations would include a requirement that access must be provided where it benefits the New Zealand dairy industry and that applications for access must be kept confidential.

Alternative option: Remove all regulations relating to access

86. This option would be a step further away from the current situation than the option above. DairyNZ, as the holder of the database, would be responsible for granting access, but there would be no regulatory requirement for them to do so. DairyNZ would not be required to have regard to the benefit to the New Zealand dairy industry (though as an industry-good body, they should have the incentive to do so). There would be no regulatory safeguard around the confidentiality of applications for access.

Questions for submitters: Access to the database

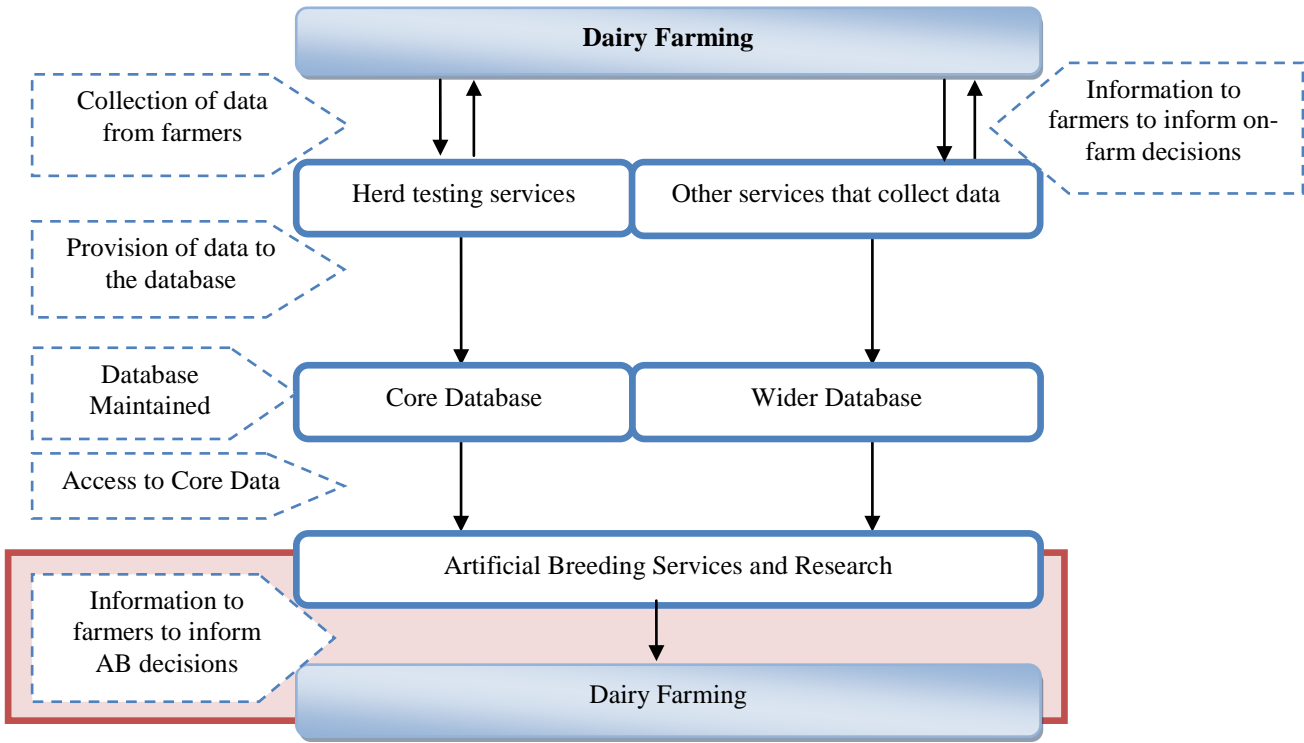
MPI is seeking any feedback you may have on the magnitude and nature of the problems in this area and the practicality and implications of the types of options presented above. In addition, some specific questions are as follows:

22. Do you consider that the current arrangements, whereby an independent panel determines applications for access, add an unnecessary layer of governance/cost in the context of industry good ownership of the database? If so, can you give an indication of the costs – both direct and indirect – and how these might differ if DairyNZ was able to determine its own access arrangements?
23. Would a legislative prohibition on discriminatory access be an alternative to an independent access panel?
24. Alternatively do you consider that the independent panel is necessary to avoid the perception of unfair treatment of different parties?
25. Do the terms for access need to be regulated, e.g. price, or should DairyNZ be free to set those terms as it sees fit?
26. Are the confidentiality provisions necessary in the context of industry-good ownership of the database to ensure that applications for access are kept confidential?

4.4. Provision of information on breeding merit to farmers

87. As illustrated by the red box in the diagram below, this section drills into the regulatory regime relating to the provision of information to farmers to inform their artificial breeding decisions. This section is structured as follows:

- It describes the characteristics that MPI is seeking to achieve in relation to the provision of information on breeding merit to farmers;
- It then describes the current regulatory regime, identifies potential problems with the current regime, and presents potential options.



CHARACTERISTICS SOUGHT

88. **Information provided to farmers on genetic merit should be transparent, objective, and comparable.** Information on the breeding merit of different bulls is complex, involving the aggregation of various genotypic and phenotypic characteristics. The ongoing improvement of the national herd requires farmers to be able to make fully informed decisions on the breeding merits of various animals when purchasing artificial breeding services. It is therefore important that the information on genetic merit is transparent, objective, and comparable. This allows farmers to select the optimal services for their needs (recognising that different farmers may be seeking slightly different breeding characteristics).

REGULATION OF THE PROVISION OF INFORMATION TO FARMERS

The Current Regulatory Regime

89. The provision of information on breeding merit is currently unregulated. Artificial Breeding companies are free to develop and market breeding indices. However, DairyNZ

sets an industry National Breeding Objective with an associated breeding index. See box text below: The National Breeding Objective.

The National Breeding Objective

The New Zealand dairy industry's National Breeding Objective is to "identify animals whose progeny will be the most efficient converters of feed into farmer profit". To achieve this objective, Breeding Worths (BWs) are given to enrolled bulls. Bulls receive these BWs based on the testing of their progeny.

The National Breeding Objective is governed by New Zealand Animal Evaluation Ltd (NZAEL), a subsidiary of DairyNZ. NZAEL runs a consultative process to determine which performance variables or key traits should make up the BW and what weightings should be applied to these. The Animal Evaluation Unit within LIC calculates the BWs for enrolled bulls. In the future, this function is expected to sit inside DairyNZ.

Problems, if any, with the current situation

90. DairyNZ is seeking to have the governance of the National Breeding Objective entrenched in legislation and compulsory enrolment in the National Breeding Objective of all bulls that have their semen marketed to farmers.
91. MPI understands that DairyNZ's vision is that there would be a single industry standard which farmers could compare bulls against (thereby removing potential problems associated with asymmetric information). Companies would nonetheless remain free to market other characteristics (e.g. through marketing their proprietary indices), over and above the industry standard.
92. MPI is therefore seeking to determine whether, under the current situation (whereby information on breeding merit is unregulated), farmers are able to obtain transparent, objective, and comparable information on breeding merit.
93. Anecdotally we understand that farmers receive a significant quantity of complex information on breeding merit from different companies. Where different companies are marketing their bulls on the basis of different indices, it is likely to be difficult, if not impossible, for farmers to assess the relative merits of the different companies' bulls. MPI is seeking to understand the extent to which this is an issue for farmers in practice.
94. However, the status quo (no government regulation of breeding indices) has the benefit of incentivising individual companies to invest and innovate in relation to alternative factors that contribute to genetic merit.
95. Moreover, the current situation does not preclude companies from participating in the National Breeding Objective. Farmers can elect to only purchase bulls that are enrolled in the National Breeding Objective (and as a result have a Breeding Worth) if there is a problem with the complexity of information. Over time, this may incentivise more

companies to participate in the National Breeding Objective, without the potential costs associated with regulatory intervention.

Other options

96. Depending on whether any problems are identified with the current regime, and the nature of any such problems, an alternative option along the following lines could be considered:

Alternative option: regulate to require the enrolment of bulls by artificial breeders in the National Breeding Objective and the provision of information on Breeding Worth to farmers

97. Under this option, artificial breeders and marketers of bull semen would be compelled to enrol their bulls in the National Breeding Objective. This option would not prevent other commercial indices being established and artificial breeders marketing bulls on both the National Breeding Objective and their own indices. However, it would entrench the National Breeding Objective's role in setting overarching breeding goals for the industry and tracking genetic gain. A risk of this option is that it may disincentivise companies from innovating in relation to alternative factors that contribute to genetic gain (e.g. if it resulted in farmers selecting bulls purely on the National Breeding Objective).

Questions for submitters: Provision of information to farmers

MPI is seeking any feedback you may have on the magnitude and nature of the problems in this area and the practicality and implications of an option along the lines of that presented above. In addition, some specific questions are as follows:

27. Do you consider that under the current situation (whereby information on breeding merit is unregulated), farmers are able to obtain transparent, objective, and comparable information on breeding merit?
28. If not, would the transparency and comparability of information on the breeding merit of bulls be improved if there was compulsory enrolment in the National Breeding Objective?
29. What are the benefits, costs and risks of legislating for compulsory enrolment in the National Breeding Objective?
30. The Breeding Worth, under the National Breeding Objective, is already widely used. Is this an indication that regulation is not necessary, since the incentive already exists for companies to enrol their bulls?

5. Summary of Questions

The specific questions posed throughout this document are summarised below. In addition, MPI is seeking any feedback you may have on the magnitude and nature of any problems relating to the regulation of the Herd Improvement Industry and the practicality and implications of the types of options presented. For more information on making a submission, please refer to page iv. The closing date for submissions is 15 February 2013.

Public policy objectives

1. Do you agree/disagree with the above proposed public policy objectives, and for what reasons?
2. What additional objectives, if any, do you think should be considered, and what for reason?

Data collection methodologies

3. Is the Herd Testing Standard ensuring the accuracy of core data and is it necessary?
4. Do you consider that continuing to require certified herd testers to provide core data to the database is necessary to ensure a sufficient quantity of data?
5. Is there a risk that new technologies will, over time, lead to a significant decline in demand for traditional herd testing services? Has this been the cause of the recent decrease in demand, or have other factors (e.g. financial considerations) contributed to the decline?
6. Can automated technologies be a substitute for traditional herd testing services, both for informing farm management decisions and to collect data for provision to the core database?
7. Will (or has) technology develop(ed) such that farmers could undertake their own herd testing in compliance with the quality standards for provision of data to the database?
8. If alternative technologies exist that are sufficiently accurate, what barriers have prevented the Herd Testing Standard being amended to incorporate these (while recognising that significant work has been undertaken towards revising the Standard)? Do you perceive there to be any regulatory or legislative barriers to doing so?

Range of data

9. Are the 46 data fields still the “optimal” data fields for the purpose of requiring that all certified herd testers verify and provide the associate data to the database?
10. If the 46 fields have been superseded, what barriers have prevented Schedule 2 of the Regulations being amended to reflect the optimal data fields?
11. What would be the potential risks, costs, and benefits of removing the regulated list of data fields and, instead, empowering DairyNZ to set the data fields in consultation with industry?
12. If the 46 fields are no longer the optimal fields, what additional or different fields would you want to include and why? Do you have any evidence that the value of including any such additional fields outweighs the costs of verifying and providing the data?

Access to herd testing services

13. How have changes in the industry impacted on the rationale for requiring nationwide herd testing services?

14. Do all farmers in New Zealand currently have access to more than one herd testing provider, or is competition limited to specific geographic areas?
15. What are the barriers to firms competing in the herd testing market? Will such barriers reduce in the event that DairyNZ holds and manages a copy of the core database?
16. Does the regional pricing requirement impede efficient pricing signals to potential competitors?
17. What are the benefits and costs of (1) requiring LIC to offer herd testing services to any farmer in New Zealand; and (2) to charge the same price within a region.

Maintenance and protection of the database

18. Do the current regulatory safeguards impose any costs on the industry? For example, do the safeguards prevent the development of the core database?
19. Do the current regulatory safeguards improve certainty for industry participants, including herd testing companies, artificial breeding companies, and farmers, that the core database will be available as an industry good asset into the future?
20. Are there any reasons why the current safeguards would not be applicable in the context of DairyNZ ownership?
21. What do you think would be the minimum safeguards required in the context of industry good guardianship of the core database e.g. requirements that the entity holding the database must be independent from commercial influence?

Access to the database

22. Do you consider that the current arrangements, whereby an independent panel determines applications for access, add an unnecessary layer of governance/cost in the context of industry good ownership of the database? If so, can you give an indication of the costs – both direct and indirect – and how these might differ if DairyNZ was able to determine its own access arrangements?
23. Would a legislative prohibition on discriminatory access be an alternative to an independent access panel?
24. Alternatively do you consider that the independent panel is necessary to avoid the perception of unfair treatment of different parties?
25. Do the terms for access need to be regulated, e.g. price, or should DairyNZ be free to set those terms as it sees fit?
26. Are the confidentiality provisions necessary in the context of industry-good ownership of the database to ensure that applications for access are kept confidential?

Provision of information to farmers

27. Do you consider that under the current situation (whereby information on breeding merit is unregulated), farmers are able to obtain transparent, objective, and comparable information on breeding merit?
28. If not, would the transparency and comparability of information on the breeding merit of bulls be improved if there was compulsory enrolment in the National Breeding Objective?
29. What are the benefits, costs and risks of legislating for compulsory enrolment in the National Breeding Objective?
30. The Breeding Worth, under the National Breeding Objective, is already widely used. Is this an indication that regulation is not necessary, since the incentive already exists for companies to enrol their bulls?

Appendix A: Regulated Core Data Fields

Regulated Core Data Fields <i>(Schedule 2 of The Dairy Industry (Herd Testing and New Zealand Dairy Core Database) Regulations 2001)</i>		
Key data	Event data	Production data
Farm location Herd number Participant code Static data Unique animal identifier Sire official indicator Sire Genetic dam Sex Date of birth Date of birth confidence indicator Breed Breed 16ths	Herd management number Herd management number start date Herd management number end date Date animal entered herd Date animal exits herd Animal fate Cause of fate Calving date Abnormal calving circumstances Calving assistance Calf number within parturition Fate of calf Comment code Date of mating Mating type Mating sire Embryo implant serial number Embryo implant date Embryo donor Embryo sire Embryo recipient Drying off date Drying off reason	Herd test date Abnormal test code PM milk volume AM milk volume Fat percentage Protein percentage Somatic cell count Average number of milkings Pre-test milking date stamp Test 1 date stamp Test 2 date stamp