States of Jersey
States Assembly

États de Jersey
Assemblée des États

Corporate Services Scrutiny Panel

Review into the Proposed Importation of Bovine Semen

Presented to the States on 16th July 2008

S.R.10/2008

Contents

1. Terms of Reference

1. To review the proposed importation of bovine semen, with a particular focus on the following issues:

    - The rationale behind the proposal
    - The economic implications of importing bovine semen
    - The implications of European Union (EU) competition law for the trade
    - The implications for the pedigree of the Jersey Island cow
    - The implications of importation on liquid milk imports

2. To examine any further issues relating to the topic that may arise in the course of the Scrutiny review that the Panel considers relevant.

2. Panel Membership

The Corporate Services Panel is constituted as follows –

Deputy P.J.D. Ryan, Chairman
Deputy C.H. Egré, Vice-Chairman
Connétable J. Le Sueur Gallichan
Connétable D. J. Murphy
Deputy R.G. Le Hérissier

For the purposes of this review the Panel formed a Sub-Panel, which was constituted as follows –

Deputy P.J.D. Ryan, Chairman
Connétable G.F. Butcher
Connétable P.F.M. Hanning
Deputy J.A. Martin

3. Independent Expert Adviser

The Panel engaged the following adviser to assist it with this review –

Professor Stephen J.G. Hall, MA PhD, Professor of Animal Science, Department of Biological Sciences, University of Lincoln.

4. Chairman's Introduction

Rightly or wrongly our agriculture industry has a reputation for disunity. Indeed history is punctuated with examples of… well let's just say 'lively debate on issues resulting in somewhat entrenched positions' and sometimes frankly worse!

Has this helped or hindered progress? It was with this in mind that I approached this review with some trepidation.

Having now come to the end of it there is one thing I can say and that is that during the course of the review I have found that although there are undoubtedly strongly held and opposing views within the dairy sector on the subject matter in question, I have found ample evidence that each side's views are held with sincerity and with affection and enthusiasm for the Jersey cow and her future in her traditional Island home.

Whatever the States decide in the coming debate I hope that all contributors to this report will accept that my panel has approached the subject in a completely impartial and dispassionate way.

The future remains uncertain for Jersey's Dairy Industry, but I can also say that its future can be a bright one. My confidence in that is based in huge part on what I have found in terms of the farming skills, integrity and commitment within its ranks.

Deputy Patrick Ryan

Chairman, Corporate Services Scrutiny Panel

16th July 2008

5. Executive Summary

The Sub-Panel reviewed written submissions, and conducted public hearings to hear evidence produced by organisations and individuals.

Four main strands of argument favouring importation of semen emerged: *facilitating* genetic improvement of the Island Jersey cow, *improving* farm efficiency, *supporting* farmers who wish to use imported semen, and *contributing* to the overall recovery plan for the Island's dairy industry. Proponents argued that no realistic alternative approaches existed.

Objections were principally along the following lines: *erosion* of the Island's heritage, *damage* to the historic purity of the breed on the Island, *disease risks* of importing semen, *probable increase in inbreeding* as a result of using limited numbers of sires, and *failure to use* genetic variation on the Island. It was also argued that better herd management would achieve the desired increase in productivity.

Objectors also drew attention to the role of the historic purity of the Island herd in maintaining controls on liquid milk imports, and this issue was subjected to legal scrutiny.

The Sub-Panel's conclusions are outlined in Section 11 (pages 59-64).

The Sub-Panel has concluded (a) that import controls on liquid milk would probably cease in the future and (b) that sustainability of the Island's dairy is connected with dairy farmers having access to Jersey semen from overseas.

The Sub-Panel therefore recommends the importation of bovine semen be permitted, subject to a number of further recommendations detailed in Section 12 (page 65).

The additional recommendations are aimed at ensuring that the substantial commercial advantages of the purebred Jersey Cow (as opposed to any possible cross breed) remain in the future; the storage of a complete set of current local genetics off-Island as a precursor to any importation; and further recommendations regarding the interests of those farmers who may not wish to use imported semen.

6. Introduction

6.1 The Proposition

The Draft European Communities Legislation (Implementation) (Bovine Semen) (Jersey) Regulations 200- (P.43/2008) were lodged by the Chief Minister on the 14th March 2008. The aim of the proposition is to remove the current prohibition on the importation of cattle semen in the Artificial Insemination of Domestic Animals (Jersey) Law 1952.

The removal of this prohibition would be achieved by the implementation of European Council Directive 88/407/EEC of 14th June 1988 laying down the animal health requirements applicable to intra-Community trade in and imports of deep-frozen semen of domestic animals of the bovine species.[1]

The Proposition was originally due to be debated by the States during the sitting on the 29th April, however during this sitting the States noted that the Chief Minister had informed the Greffier of the States, in accordance with Standing Order 30(2), that the Draft European Communities Legislation (Implementation) (Bovine Semen) (Jersey) Regulations 200- would be deferred until the States sitting of the 15th July 2008, during which time they would be reviewed by a Sub-Panel of the Corporate Services Scrutiny Panel.[2]

6.2 Background to the ban on importation of semen[3]

1763: The States of Jersey passed the first Act banning the importation of cattle into Jersey. It forbade *"all persons whatsoever from importing from France any cattle, sheep, hogs, fowls, eggs, meat and any kind of butter or fat, under pain of confiscation of the vessel and cargo to the King."*

1789: On the 8th August 1789 the Law was reinforced, and far more specific, the penalties for landing cattle illegally were not only to be borne by the master of the ship but all sailors and crew. However, because of the wars and the unavailability of English bullocks to feed the increasing garrison this act was laid aside after some time.

[1] P.43/2008
[2] Minutes of the States Assembly, 29th April 2008
[3] Submission from RJA&HS, Appendix 2

1826: On the 18th March 1826 the States passed a new Act to re-enforce the previous law, which also outlawed ships carrying French cattle from venturing closer than *'two leagues'* to the Islands' coast.

1864: Following the signing of the British-French Trade Agreement in 1860 the States were keen to encourage new free trade between Great Britain and France, and therefore changed the Cattle Importation Law on the 8th September 1864. The new law stated that foreign cattle may be introduced into the Island for consumption or if in transit; however strict conditions were applied, including the ban on any foreign animal being allowed to reproduce. This law also did not ban cattle from the other Channel Islands; however the provisions of the previous law did still remain.

1891: With the onslaught of the cattle plague epidemic, the States took immediate action to ban importation of all livestock, and this ban has remained in force since (with the exception of a few shipments of beef cattle for the occupation forces in the Second World War).

1952: The Artificial Insemination of Domestic Animals Law was sanctioned to prevent the importation of any genetics that could violate the high pedigree status of the Island cattle.

1986: The Act was amended to prevent the importation of Embryos or Ova.

6.3 Historical background on Jersey cattle

Like several other dairy breeds (the Ayrshire, Guernsey and Friesian, for example) the Jersey originated in a small geographical area where its dairy merits became fixed by selective breeding. These qualities became widely known and in 1834 the newly formed Royal Jersey Agricultural and Horticultural Society (RJA&HS) drew up a scale of points specifically relating to the Jersey. By 1878, annual importation of Jersey cattle into the UK was running at about 2,000.[4]

Fashionable involvement in the breed led to greater public awareness of its qualities as rich owners were prepared to show their stock, and at the London Dairy Show in 1879, 253 Jerseys were entered, this being the single most numerous breed present.

[4] Hall, S.J.G. & Clutton-Brock, J., (1988). Two hundred years of British Farm Livestock. British Museum (Natural History).

In its celebration of 175 years of the RJA&HS, the continuing worldwide success of the Jersey breed is documented.[5] From its humble origins on a small Island, it is now the world's second largest dairy breed (after the Holstein-Friesian and in front of the Brown Swiss). Remarkably, its place of origin, the "cradle of the breed", is protected by law against genetic infiltration. Legal instruments of this kind are very unusual. In the Republic of Ireland, Kerry cattle in their native area were protected by the Livestock Breeding Act of 1925[6], probably the only example in the British Isles. Permission to import bovine semen would end this historic isolation.

[5] RJA&HS, 2008. The world Jersey journal. 18th International Conference 2008. RJA&HS, Jersey
[6] Hall & Clutton-Brock, op. cit.

7. Breed improvement initiatives and research undertaken to date

A basic problem with selective breeding of dairy cattle is that most of the traits of interest are expressed only in females.[7] This is, of course, unlike the situation in meat animals and fibre producers and, coupled with the low prolificacy of the cow means that candidate animals for selective breeding are not numerous. However, the eminent practicality of reproductive technology in the bovine means that, should a bull be found which can pass on the genetic merits of its dam, these advantageous genes can be spread rapidly through the breed. The central process in scientific dairy improvement has been progeny testing ("bull proving") whereby the performances of daughters of young bulls of high predicted merit are recorded.

Jersey Bull Proving Scheme

In 1983, the Jersey Bull Proving Scheme (JBPS) was proposed by Dr Jim Allan at the invitation of the RJA&HS. Reporting to the Albert Messervy Memorial Conference in 1987, he said:

"As I see it, the Island requires an infrastructure for the testing of young bulls with a view to obtaining timely and reliable information on their breeding abilities for both type and production. As I see it, too, this infrastructure will be as important for the establishment, within the Island, of a meaningful improvement programme as it will be for the intelligent use of imported semen, should you decide to avail yourselves of this option."[8]

Dr Allan went on to conclude that the total of six percent inbreeding in the Island's genetic pool is very low and that:

"This, together with the small expected increase in the coefficient of inbreeding in the proposed testing system and the presence of sufficient genetic variation in yield of milk, butterfat and protein in the Island stock, makes it unnecessary to import semen. I must admit that I am personally relieved to find that it is not necessary. I think the Island breed can be improved in a variety of ways by diligent testing and the judicious

[7] Simm, G. (1998). Genetic improvement of cattle and sheep. Farming Press, Ipswich.
[8] Allan, J., (1987). To import the semen of superior progeny tested sires or not to import semen. Proceedings, The Albert Messervy Memorial Conference, p.8

use of tested bulls and cows. By doing this, I think you will be able to compete successfully in the various facets of the local and international markets."[9]

As explained in the submission from the RJA&HS, Dr Allan subsequently undertook an analysis of the success of the scheme in 1993.[10] One of Dr Allan's conclusions was that the annual rate of genetic improvement expected without importing semen would be 0.4%, whereas the improvement expected with imported semen would be 0.82%.

However, a later letter from Dr Allan to Mr Nicholas Blampied, in response to Mr Blampied's correspondence of the 11th February 2007, makes the following statement:

"When I proposed the YBPS[11] *in 1983 I hoped, and indeed expected, that all 3500 cows would be involved in the scheme. It transpired, however, that* ***barely half*** *this number of cows was made available for mating with young bulls on test – and this was in spite of generous payments for completed first lactation records by the daughters resulting from such mating. This lack of co-operation undermined the expected effectiveness of the YBPS.*

I find it difficult to understand that breeders who are ***unwilling*** *to attempt to exploit the existing genetic variation in the Island herd in a positive way are* ***willing****, on the other hand to forfeit the precious distinction of genetic individuality built up by generations of dedicated forebears, for the sake of a relatively limited improvement in milk yield and to become like all other national herds."*[12]

Dr Maurice Bichard

The evident lack of progress with the JBPS, and interest on the Island in the great advances in performance and dairy type visible in overseas Jerseys, led the RJA&HS to commission Dr Bichard in 2003 to advise on the 'Sustainable development of the Island's dairy cattle' following a large reduction in the Island herd between the years 2002 and 2003 in the order of some 20%, or just under 1,000 cows.[13]

[9] Allan, op. cit., p.11
[10] Submission from RJA&HS, p.3
[11] Young bull proving scheme
[12] To Nicholas Blampied in response to your 11 February 2007 questions on 'Jersey's Genetic Isolation'. Dr Jim Allan
[13] Submission from RJA&HS, p.3

With reference to the bull proving scheme, Dr Bichard summarised:

"The Island population is too small, and RJAHS has failed to get herd owners solidly behind the scheme. As a result, in spite of all the hard work by Society committees and staff, the annual rate or progress in milk yield, the trait which most directly affects efficiency, has been slow (24 kg or 0.6%)."

"A new improvement programme could be introduced based on within-Island selection, but even if it were well run and fully supported, it could not generate a rate of progress in any way competitive with the overseas schemes. The already large lags in production would widen. While the Island's purity would be of great interest to overseas breeders and scientists, it is unlikely that it would rekindle a significant export income. The interviews conducted with herd owners did not seem to promise sufficient support for an efficient programme to be run, as too many have their own individual agendas."

Dr Bichard's final conclusion was as follows:

"RJAHS should recognise that it cannot operate an internationally competitive closed breed improvement scheme for the Island's cattle. It would be of benefit to Island farmers and their customers if importation of Jersey breed semen (frozen) were permitted with due attention to the exclusion of disease."[14]

Microsatellite study of population genetics of Island Jersey cattle

In 1999, with the support of RJA&HS samples for DNA analysis were collected from 37 of the 62 herds on the Island and their microsatellite genetic diversity assessed by Chikhi et all., (2004).[15] Microsatellites are pieces of non-functional DNA, inherited in the familiar mendelian fashion. They have a high mutation rate and being non-functional they are not directly subject to natural or artificial selection. Their diversity can be used to infer the general level of genetic variation within an organism and, by extension, within the population. When populations have become separated, the microsatellites in each will tend to diversify (evolve) in different ways, by virtue of different mutations occurring in each population. Microsatellites have been extensively used to answer evolutionary and ecological questions and many valuable

[14] Sustainable Development of the Island's Dairy Cattle, Dr Maurice Bichard, pp. 5-7
[15] Chikhi, L., Goosens, B., Treanor, A., & Bruford, M.W. (2004). Population genetic structure of and inbreeding in an insular cattle breed, the Jersey, and its implications for genetic resource management, *Heredity, 92,* 396-401.

insights into breed history have been obtained and are reported in the scientific literature. The findings of Chikhi et al., (2004) included, that inbreeding was low, that there was limited but significant genetic differentiation between herds or Parishes, and that the general level of genetic variation was surprisingly high. In their words:

"Despite the increasing worries of farmers that inbreeding was accumulating across the island, our results suggest that the Jersey Island cattle is just as variable as many other breeds. The level of inbreeding is low and does not appear to justify imports of semen from other Jersey populations.

While imports could indeed bring new alleles or genotypes, it is far from clear whether it is really necessary."

In response, the following statement is made in the submission from the RJA&HS:

"What has not been made clear is that the 'Chikhi Report', whilst published in 2004, was based on research, assisted by the RJA&HS undertaken in 1999 (prior to Dr Bichard), and also that of the 37 herds sampled in 1999 (out of 62) some 15 have since been dispersed and exported to the UK.

Demonstrating that the 'Chikhi Report' is superseded by the Bichard report is relevant in that Chikhi only considers importation as being unnecessary as a means to avoid inbreeding. It has already been demonstrated that the issue is not the avoidance of inbreeding now but the inability to keep up with rates of improvement and the risk of future inbreeding in a small population if subject to the highest possible intensity of selection pressures which, in itself, would still not be enough to keep up with global rates of improvement."[16]

This statement cannot remain unchallenged, on scientific grounds. At the time of the research, importation of semen was being justified mainly as a means of avoiding inbreeding. The description of the research as having been "superseded" is not accurate. A scientific paper in one of the world's top genetic journals is not aimed at answering the same kinds of questions as a consultancy report. More importantly, the question remains whether the importation of semen is indispensable for achieving improvement, given that in principle the genetic variation that is demonstrable in the Island population could be exploited (as indicated in Professor Bruford's

[16] Submission from RJA&HS, p.4

communication to the Sub-Panel).[17] However, the point made by the RJA&HS, that the dispersal and export of 15 herds will have reduced genetic diversity since the samples were obtained, is a fair one, but without a detailed analysis of pedigrees or a new DNA study it cannot be confirmed.

[17] Submission from Professor Bruford

8. Legal Implications

8.1 Importation of non-Jersey semen

The importation into Jersey of the embryos, ova or semen of any cattle is currently prohibited under Article 3(1) of the Artificial Insemination of Domestic Animals (Jersey) Law 1952 (the **'1952 Law'**). This Law was in force prior to negotiation on Protocol 3.

This prohibition could be subject to challenge by the European Commission (as was the existing ban on the importation of liquid milk in 2001 - see section 8.3 below) on the grounds that it is contrary to the general principle of the free movement of agricultural goods in the European Union. Article 30 of the Treaty of Rome, which established the European Economic Community, prevents member states from restricting the free movement of goods (unless restrictions can be justified on grounds set out in Article 36). Under Protocol 3 which defines Jersey's relationship to the European Union, the presumption of free trade in agricultural goods is extended to Jersey.[18]

Jersey does not have a derogation granted under Protocol 3 to allow imports of semen or milk to be restricted. The principal argument which could be used to defend the existing ban on the importation of semen, should this ever be challenged, would be based on animal health. This is one of the grounds set out in Article 36 of the Treaty of Rome for restricting the free movement of goods. For example, Jersey relies on this provision for its absolute ban on the importation of live cattle which maintains Jersey's status as free from diseases endemic in the United Kingdom and the rest of Europe. This is recognised and accepted by the European Commission. Another reasonable ground for restricting free movement of goods is the conservation of biodiversity[19]. Neither of these defences, however, is incontrovertible in respect of Jersey's ban on the importation of bovine semen.

[18] If Jersey acts in conflict with Protocol 3, the EU Commission can be expected to instigate infringement procedures. These will be brought through the UK, and that in itself will be embarrassing for both the Island and the UK, and damaging for the Island's relationship with both parties. Any substantive changes to the Island's obligations under Protocol 3 would ultimately require either full membership with the EU, or conversely, independence from the UK. Neither of these options are currently under serious consideration.

[19] This was recognised by the European Court of Justice in its judgment on the Danish brown bee case. The Court agreed that a restriction on the importation of any bees into an island forming part of Denmark was justified in order to protect the colony of brown bees on the Danish Island of Laeso

The Director of Environment told the Sub-Panel:

"There are arguments that we could use that are similar to the ones we have used in respect of milk[20] *that may make it possible to resist such a challenge but, again, that has never been tested."*[21]

While Jersey may continue its current practices, albeit without any official derogation, given the lack of a legal challenge to the contrary, the situation changes significantly if Jersey decides to alter the existing ban as any new legislation must be demonstrated to be compliant with the principle of the free movement of goods.

If the current ban on importation of bovine semen is to be lifted, this will be done through the draft European Communities Legislation (Implementation) (Bovine Semen) (Jersey) Regulations 200- (the '**Regulations**') under which article 3(1) of the 1952 Law will be deleted and the Minister will be enabled to control by Order the practice of artificial insemination through the issue of licences for those people carrying out artificial insemination of cattle and the establishment of a comprehensive regulatory framework for the use of bovine semen.

As the draft Regulations make clear in the preamble, the mechanism being used in this case is the European Communities Legislation (Implementation) (Jersey) Law 1996 which enables European Directives to be extended to Jersey. Thus Council Directive 88/407/EEC, which lays down the animal health requirements applicable to intra-Community trade in and imports of bovine semen, will be implemented in full in the Island.

Under this European Communities legislation, Jersey cannot differentiate in its own legislation between pure Jersey semen and any other sort of semen.

In addition, the effect of deleting Article 3(1) of the 1952 law will be to allow the importation of ova and embryos into the island (see section 8.2 below).

The Chief Minister explained to the Sub-Panel why it was not possible to differentiate between different types of bovine semen:

Denmark. However, the case regarding the protection of the pure Jersey herd on the Island is different as the herd itself is not a rare or endangered species http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!CELEXnumdoc&lg=en&numdoc=61997J0067

[20] See section 9.4 of this report

[21] Transcript of Public hearing, 20th June 2008, p.9

"We would not be putting forward a general importation amendment if we possibly could restrict to pure Jersey semen, but we have been advised consistently that under the Protocol 3 arrangements that Jersey has with the E.U. (European Union) it is just not legally acceptable. That is the essence of the argument that any attempt by us to restrict the importation to pure Jersey semen would be in breach of E.U. law and the Attorney General could not, on that basis, support it."[22]

The Director of Environment explained further why it would not be possible to differentiate between pure Jersey semen and any other sort of semen:

"We are using the Jersey law that allows the extension of E.U. law to Jersey to bring forward a piece of E.U. legislation, which is Directive 88/407, which deals with the arrangements for the transfer of semen between countries and requires us to behave in the same way as another member state, both in terms of the quality control and tests we put around the export of semen from Jersey in the same way as they put tests around theirs. All we can do is bring in that law as it stands. That law does not include, for instance, the ability to differentiate between pure Jersey semen and some other sort of semen. It is not a part of the law, therefore we cannot bring it in as a vehicle into Jersey law."[23]

He went on to explain that the alternative course of action, that is Jersey preparing its own piece of primary legislation, was not an option:

"If, for instance, we did want to have a piece of legislation that only allowed in pure Jersey semen we would therefore have to do it through primary legislation because there is no E.C. directive that covers that. *We would have to create that. The first obstacle is the Attorney General would be obliged to inform the States that that piece of legislation was probably not lawful. We would then have to go to the Privy Council who would determine that that piece of legislation was not lawful and we would end up with no result. So that is the fundamental problem why we cannot just import pure Jersey semen."*

It was however possible for controls to be put in place to protect the purity of the Jersey herd. The Chief Minister told the Sub-Panel:

[22] Public hearing dated 20th June, p.4
[23] Public hearing dated 20th June 2008, p.10

"You have, I am sure, been given a great deal of information and detailed information on the controls that the RJA&HS would exert and indeed the Jersey Milk Marketing Board would exert as well. So in the event of the amendment being passed there is no means of banning the importation of other semen but the controls that would be introduced, and indeed are already written into the rule book of the RJA&HS, would be such that the purity of the breed would be protected."[24]

The draft Orders[25] which accompany the proposition set out the control framework for the regulation of the import, export, disease testing, storage and use of bovine semen.

8.2 Importation of embryos and ova

As previously mentioned (see section 8.1 above) the Regulations, if passed by the States, will allow the importation of embryos and ova into the island.

In an answer to a concern in the public meeting about the dangers of rogue embryos and cloning, the States Veterinary Officer stated:

"Embryo transfer is a very skilled operation involving body cavities and it can only be carried out by qualified veterinary surgeons and embryo transfer teams that have been officially approved. In relation to cloning, again these procedures are scientific procedures and they are very tightly controlled under the scientific procedures type of legislation. Locally we have the Animal Welfare (Jersey) Law 2004 which prohibits scientific procedures."[26]

While it would be technically possible to import a non-Jersey embryo and implant it into a Jersey cow, the resulting animal would never be accepted as part of the Jersey herd. The Chief Minister accepted that an individual farmer could, in theory, decide to set up his own independent dairy processing plant with the product of a non Jersey embryo. However, as he told the Sub-Panel:

[24] Public hearing dated 20th June 2008, p.8
[25] Artificial Insemination of Domestic Animals (Bovine Semen) (Jersey) Order 200- and Artificial Insemination of Animals (Jersey\) Order 200-
[26] Public meeting dated 17th June 2008, p.32

"That cow could never be on the Jersey register and its milk could never be received or processed at the dairy. But you have to question whether that would make any sense at all from an economic perspective."[27]

The reason would be that the farmer would be outside the scope of any subsidy. States subsidies are only payable to animals registered in the Jersey herd.

Mr. D. Frigot, Director, Jersey Island Semen Exports Ltd, explained that controls on the use of embryos in cattle were stringent and the cost of embryo technology on cows was far more expensive to dairy producers than using semen. He told the Sub-Panel:

"In this situation in Jersey, I do not believe any embryos will come in. In fact, the Society were not wanting to bring in embryos when we debated it. The rules of the Jersey herd book do not allow for imported embryos to be registered so that is important. If they are not registered, the herd in which they are used cannot sell their milk to the Milk Marketing Board under the present rule. … I really think the embryos are a red herring, to be honest, an absolute red herring because dairy farmers are wanting - and this is the very essence of the whole argument - to improve their Jersey cows and supply milk to the Jersey Milk Marketing Board in a more efficient way. At the moment they cannot do that. They are certainly not going to be into the game of embryos. I will tell you, the people who buy embryos are the people who show their cattle and want to have the prestige of winning shows, of selling offspring."[28]

8.3 Controls on the importation of liquid milk

The current situation

The importation of liquid milk into Jersey is only allowed by licence under the provisions of the Customs and Excise (Jersey) Law 1999. As explained in the proposition there is no intention to relax this policy unless local supply does not meet local demand or that policy is subjected to a successful legal challenge. [29]

In 2001 a complaint was made to the European Commission that Jersey's import controls on liquid cows' milk were in breach of Community law, as it applies to

[27] Public hearing dated 20th June 2008, p.14
[28] Public hearing dated 20th June 2008, p.10
[29] P.43/2008

Jersey. Jersey's defence to the Commission argued that as a result of the small market size, the viability of the Island's herd and maintenance of the gene pool, the controls needed to be maintained.[30] The outcome was as follows:

"In the event the Commission decided not to pursue the matter and so it is not known on what grounds the Commission's decision was taken nor, therefore, what the Commission thought of the strength of Jersey's case in general, or any particular aspect of it. But it is reasonable to assume that the closed herd point was at least a material consideration in that decision, and therefore, that if, in the future, a defence of the milk import restrictions had to be mounted without the closed herd argument, it would be a materially weaker defence."[31]

<u>The implications of lifting the ban on semen importation on the Island's liquid milk controls:</u>

Other arguments in favour of milk controls are available: the case to the Commission was also built upon arguments based on health grounds, the United Nations Convention on Biodiversity[32] and the cultural impacts if the importation of milk led to the loss of the Jersey cow in the Island.

The Sub-Panel asked Mr. C. Webb, Executive Director, Jersey Competition Regulatory Authority, for a view on the impact of raising the ban on the importation of bovine semen on the milk controls. He said that it was difficult to judge whether this would make a material difference:

"I think it is a hard call because you can never really judge with any degree of accuracy what goes on within the inner workings of the Commission. Was the case not pursued because of the closed-herd argument and, if so, was the lack of importation of semen -- how big was that in the Commission's mindset? I do not know. Or was it not pursued simply because the Commission had other priorities? That happens all the time as well. So I think that is very difficult to answer without having direct access to the Commission."[33]

[30] P.43/2008
[31] P.43/2008 Importation of Semen – briefing note. Legal argument around the retention of milk importation controls.
[32] United Nations Conference on Environment and Development, Rio de Janeiro, June 1992
[33] Transcript of public hearing 16th June 2008, p.3

He went on to point out that Guernsey maintained controls on milk importation yet it allowed the importation of bovine semen. He cautioned:

"It has not been yet tested by the Commission. But, again, the fact that it has not been tested in no way creates law[34]."

The Sub-Panel asked for the opinion of Ms A. Freeman, Head of Milk Policy Team at the Department for Environment, Food and Rural Affairs, UK (DEFRA) on the question of whether the lifting of the ban on importation of semen would weaken the case for maintaining the controls on milk importation and whether there was a link between the Island's closed herd and the EU not pursuing the complaint about liquid milk import restrictions in 2001. In her response she examined the correspondence sent from the United Kingdom Permanent Representation to the Commission in 2002 and commented:

"It is clear that the preservation of genetic integrity was the central plank in the case put previously. It is therefore not unreasonable to assume that should the ban on the importation of bovine semen be lifted and the import restrictions on liquid milk were to again be challenged, the Commission would want to explore why the reasons outlined in previous correspondence had changed. They would then evaluate those reasons and any other justifications given[35]."

Ms Freeman cited the example of Isle of Man's application in 2005 to invoke the safeguard measures in Protocol 3 and introduce a derogation allowing imports of milk to be restricted. She informed the Sub-Panel:

"The Commission were not persuaded by the Isle of Man's arguments that a minimum number of cows/dairy farms were needed in order to ensure the continuation of the sector. Nor were they convinced by the arguments that import controls would help maintain the environment and in particular the landscape. The Commission argued that innovation, becoming closer to the market and restructuring were more effective methods of protecting the dairy industry. Safeguard measures were supposed to be for temporary market disturbances, and that structural issues need structural solutions[36]."

[34] Transcript of public hearing 16th June 2008, p.3
[35] Letter dated 3rd July 2008 from Head of Milk Team, DEFRA
[36] Letter dated 3rd July 2008 from Head of Milk Team, DEFRA

The Commission was also reluctant recently[37] to grant the Isle of Man an extension for a long standing derogation permitting the Island to apply a system of special import licences to sheep meat and beef and veal.

Ms. Freeman pointed out that the Commission's general attitudes to trade restrictions had changed in favour of considerably more trade liberalising than it was previously.

In conclusion, she advised the Sub-Panel:

"I think it is unlikely that maintaining the status quo of having a closed herd will necessarily guarantee that the Commission would allow the import restrictions to continue should there be another complaint. Should the import ban on bovine semen be lifted, if you wish to minimise the risk of the milk import issue being queried again by the Commission, it might be wise to ensure that the justification for imports of bovine semen includes clear arguments as to why semen imports are necessary for the long term genetic viability of the island herd, do not impact on its closed nature, and are necessary to prevent it from becoming too inbred[38]."

<u>The economic impact of liquid milk imports:</u>

The impact of liquid milk imports was covered by the Promar report in 2006, which clearly expressed the view that in its current state, the Jersey dairy sector would be in no real position to defend itself from severe competition, if the situation arose where the imports of liquid milk could not be resisted.[39]

This issue was discussed during the Public Hearing with the JMMB, where it was explained that the central aim of the roadmap was to narrow the gap between the retail price of milk in Jersey compared to the retail price of milk in the UK:

Mr A. Le Gallais:

"We believe that is fundamental in discouraging importation of milk in the future. Relying on government with the controls that it has at the moment to maintain that for ever and a day, we believe, is unsustainable."[40]

[37] Council Decision 2006/138/EC of 20 February 2006.
[38] Letter dated 3rd July 2008 from Head of Milk Team, DEFRA
[39] Promar International: A Sustainable Dairy Industry in Jersey, Final Report (December 2006), p.62
[40] Transcript of Public Hearing, 16th June 2008, p.2

Conclusion:

The Sub-Panel acknowledges the arguments against the importation of semen, in terms of concerns about the heritage of Jersey, and the likely requirement to admit semen and possibly embryos of other breeds. However, in order to comply with Protocol 3, it is not possible legally to restrict the use of any imported semen, embryos or ova and any quantitative restrictions on use once imported would be likely to contravene Protocol 3 as well.

Persistence of the liquid milk controls was extensively discussed. If semen importation **is not** allowed, there is a real risk of further erosion to the overall size of the local herd through another spate of farm closures and herd disposals off Island. The resulting shortfall in supply would make milk importation a necessity. If semen importation **is** allowed, a material defence against liquid milk imports could be removed.

The continued import restrictions via States Regulation of liquid milk on the one hand, and semen on the other, are both ultimately questionable, and liable to future challenge.

8.4 Local food retailers

The Sub-Panel contacted the major food retailers on the Island, to establish what their response would be if the controls on liquid milk imports were relaxed for any reason, and whether they would stock imported liquid milk in their stores.

The response from Sandpiper CI clearly explains that despite the company's loyalty to buying produce to support the Jersey economy, it is known that Sandpiper can secure supply of milk from the UK at cheaper cost prices than from Jersey Dairy, and that if import controls were lifted and there was a competitive threat from other retailers, then they would stock imported milk. It was further explained that there would be little doubt that price differentials would secure significant market share for imported milk.[41]

The response from the Channel Islands Co-operative Society Limited stated the following:

[41] Letter from Mr ATJ O'Neill, Chief Executive, Sandpiper CI, dated 23rd June 2008

"With a changing retail scene however and rising competitive and inflationary pressures, any relaxation in importation rules could very well prompt somebody, perhaps more in the food service business than in retail, to break ranks and bring milk in from either the UK or France. We at the Co-op are unlikely to take the lead on this but would have to react to competitive pressures.

On balance, the Channel Islands Co-op would prefer to see the continued maintenance of rules to prevent milk importations, even if this is not in the long-term sustainable. Any changes in this situation would see us react to rather than leading changes to the current status quo."[42]

When contacted further by the Sub-Panel, it was confirmed that if faced with a shortfall in supply of Jersey milk, the Channel Islands Co-op would be able to relatively quickly organise supplies for imported milk. However, a note of caution was expressed, as the supply side and pricing in the UK and elsewhere in Europe has been tightening up considerably over the last few months.[43]

Conclusion:

The Island's mainstream food retailers are not actively looking to import liquid milk, and those that have responded to the Sub-Panel have expressed a preference to support the local dairy industry as far as possible. However, the food retailers that have responded have stated that they would import milk on a reactive basis, if forced to do so by a third party importer, in order to protect market share and offer a competitive choice to customers. Lastly they would have to import if they found the Jersey dairy could not meet their local demand.

[42] Letter from Mr J Hopley, Chief Executive, Channel Islands Co-operative Society Limited, dated 3rd July 2008
[43] Mr J Hopley, Email correspondence, 7th July 2008

9. The rationale behind the proposal

As outlined in the Proposition, in April 2007 the Chief Minister received a joint request from the Royal Jersey Agricultural & Horticultural Society (RJA&HS) council and the Jersey Milk Marketing Board (JMMB) requesting the removal of the current prohibition on the importation of cattle semen.[44]

The submission from the RJA&HS states that there are four main strands of reasoning for allowing importation of the best Jersey genetics available, each of which will now be discussed in turn, in addition to the other arguments in favour of importation that were raised during the course of the Sub-Panel's review:

9.1 To improve the Jersey cow in the Island

The submission from the RJA&HS explained that:

"The practice of importing the best pedigree Jersey bulls through their semen is to bring back genes that were exported from the Island over previous generations. Indeed it should be realised that the Island does not have a closed herd, in the true meaning of the description; it has a 'half open' herd as a stream of genetics has left the population over many years."[45]

Throughout the Sub-Panel's review the Sub-Panel heard from frustrated local farmers who, as stated by one witness before the Sub-Panel, felt that they did not know what to do, and "have come to the end of the road" in terms of improving their herds.[46] The need for access to improved overseas genetics was one of the most widely cited reasons for lifting the ban on the importation of bovine semen, as many farmers felt they couldn't proceed in the industry without this.

Mrs A Perchard, Patron of the World Jersey Cattle Bureau, summarised the need for improving the Island's breed in her submission to the Sub-Panel:

"As I have seen with my own eyes in many countries, skilled and dedicated breeders (such as we have on our own island), are using the best sires to reinforce and improve conformation as well as raising milk production, thereby raising the overall

[44] P.43/2008
[45] Submission from RJA&HS, p.3
[46] Mr R Perchard, Transcript from Public Meeting, 17th June 2008, p.35

standard of their herds. Our present breeders also need to breed super efficient cows with top functional type in these especially difficult economic times—opponents are telling our breeders that they must continue to work with tools not suited to their job."[47]

Similar sentiments were expressed in the submission from Mr D Frigot, Jersey Island Semen Exports Limited:

"A number of those involved in the breed in this Island also want the opportunity to improve their stock, not only to produce more efficient cows for production, but also for enhanced health traits and body conformation of their cows. They are the keepers of the breed and should be respected for their dedication to their work."[48]

Mr Frigot elaborated upon this issue during his attendance at a Public Hearing with the Sub-Panel:

"The reason that Island breeders want to import pure Jersey bull semen is not just to increase milk. That is a very negative approach to it. It is to improve all the different traits of a cow, particularly health traits: the udders, the legs and feet for mobility which is highly important, somatic cell count which is the cleanliness of the milk inside the cow since stock have infections et cetera, the bone structure of the cow which is important et cetera."[49]

The Sub-Panel heard from several proponents of semen importation that the Island Jersey cow is, on average, inferior in performance and other traits to her UK and overseas counterparts. This opinion can be tested in the case of milk production (the trait of economic relevance that is easiest to measure). The objective evidence, summarised in Dr Bichard's report[50], supports this opinion in the view of the Sub-Panel. Comparison is more difficult in relation to other traits, though several witnesses affirm the conformation of Island Jerseys could be improved. In any case, the lack of any export market for Island-bred females suggests that lower yield is not compensated by merit in other respects. The Bichard report confirms that the rate of genetic improvement in Island cattle has been considerably lower than those measured elsewhere. The Sub-Panel therefore accepts that there is scope for improvement of the Island cow.

[47] Submission from Mrs A Perchard
[48] Submission from Mr D Frigot
[49] Transcript of Public Hearing, 20th June 2008, p.2
[50] Bichard, op. cit.

Since the 1920s, milk yields have increased five-or six-fold in the UK. Half of this improvement is attributable to improved management, the other half to the adoption of high-yielding breeds and to genetic improvement within the breeds.[51] This genetic improvement has been made possible by (a) efficient milk recording enabling high performance cows to be identified, (b) quantitative genetic methodologies enabling sons of these cows who are able to pass on their mothers' merits to be identified, (c) reproductive technologies enabling these sons to be used throughout the breed, and (d) international trading arrangements so advances in one country can be applied in others.

Conclusion:

Use of imported semen to improve a breed is a very well established technique and cost-benefit analyses are in all likelihood, reliable. There is thus a high degree of certainty that importation of semen would indeed improve the Island Jersey cow and this argument therefore has merit.

9.2 To improve farm efficiency

The submission from the RJA&HS explains the importance behind improving farm efficiency:

"On the assumption that there is a shared desire from all parties to see a sustainable Island herd of Jerseys graze local fields and supply milk and products then it is vital that the herd and its processing capacity is as competitive to imported products as possible. To maintain a less efficient herd would either require greater retail prices than would otherwise be the case or greater government support."[52]

The States of Jersey Livestock Advisor produced a report outlining the financial benefits of more efficient genetics. This report concludes that the extra profitability generated from the decision to use exclusively imported bull semen on a 120 cow dairy herd over a 10 year period would amount to approximately £70,000. In the tenth year of using imported bovine semen, profitability would be approximately

[51] Simm, G. 1998. Op. cit.
[52] Submission from RJA&HS, p.4

£22,750 greater than that arising from the current situation. This would equate to a financial benefit of 3.7p per litre in milk production alone.[53]

The submission from the RJA&HS explains that the effect of improved genetics in terms of farm efficiency and therefore improved economics of milk production have been well demonstrated through a number of long running experiments across the world. The results from an experiment with the Langhill Herd of the Scottish Agricultural Colleges indicates that the high genetic merit cows produce the same volume of milk per year; however this is using 1.5 tonnes (per lactation) less feed than the controls. The submission goes on to explain the following vital point:

"Improved genetic merit cows do not necessarily mean producing more milk, it is this improved feed conversion efficiency that is of vital importance in reducing the cost of milk production."[54]

The Sub-Panel invited Mrs Catherine Vint to attend a Public Hearing, as Mrs Vint provides an interesting example of the differences using improved genetics can yield, having moved her dairy herd from Jersey to the UK in 1996. Mrs Vint explained that on moving to the UK, they bought part of a herd in Essex, which had been bred using genetics from New Zealand, Australia, and America:

Mrs C. Vint:

"We were just putting food into our "Island girls" and food into the "Essex girls" and the yield differences were just astronomically different."

Deputy P.J.D. Ryan:

"The Essex were better?"

Mrs C. Vint:

"Far superior, sadly. It was quite a shock to us to realise what a difference there was."[55]

Mrs Vint went on to explain the exact difference in the yield that was obtained:

[53] Submission from RJA&HS, Appendix 11
[54] Submission from RJA&HS, p.5
[55] Transcript from Public Hearing, 16th June 2008, p.5

"This is just the classic example of the difference of the yield that you get in exactly the same management situation. Over 5,000 – I think it is 5,300 litres from a heifer lactation – is very, very useful and the Island girls are doing 3,500 litres under the same management. For the cost of a different straw, it is very, very rewarding."[56]

Mr Leith explained the need for increased productivity in his submission to the Sub-Panel:

"I think I speak for most of the large herds when I say that we have more than enough cows to look after already and the only way we could envisage increased production is with enhanced genetics and the same amount of cows."

Mr Perchard took this one stage further in his submission to the Sub-Panel, by explaining the impact that not allowing semen importation would have on the need for States subsidies:

"The rationale behind semen importation is to make herds more profitable so that they become less dependant on the subsidy safety net. If the States vote to keep out semen they will be tying the hands of milk producers and, if their oft repeated mantra of "brown cows in green fields" is to be achieved, they will be morally obliged to continue subsidising the industry at ever increasing levels."

Mr Foulser, Chairman, Jersey Dairy Limited, explained during the Public Hearing with the Sub-Panel that in order to have a viable and sustainable dairy industry, it was vital to be efficient in all areas of the business, and although Jersey Dairy had worked hard over the last four years to squeeze out inefficiency, this was not the case for the Jersey cow:

"We are inefficient or the Jersey cow is inefficient, in terms of its yields, in comparison with Jersey breeds outside of Jersey. When we try to take our products outside of the Island of Jersey we are, of course, competing with all sorts of processors who have yields that go up to, I believe, 7,600 for a Holstein, 82 per cent more than the Jersey breed in the Island."[57]

[56] Transcript from Public Hearing, 16th June 2008, p.7
[57] Transcript of Public Hearing, 16th June 2008, p.3

Conclusion:

Experience has shown (MAFF, 1975[58]; van Arendonk et al., 1991[59]) that higher-producing cows are, indeed, more efficient biologically, when this is measured at the level of the animal. However, in the Jersey context the choice of efficiency measure is conditioned by the existence of milk quotas and the cost of labour and land, so farm efficiency would indeed be increased by having a smaller number of cows producing the same volume of milk. This argument therefore has merit.

The Sub-Panel believes the Jersey Dairy has analysed the situation correctly and that increased herd efficiency is necessary in order for the Dairy to achieve its fundamental aim of processing milk efficiently and marketing it as well as possible. The Dairy has managed to avoid the increasing costs of milk that have been experienced in the UK, but in order to keep the local cost of milk down, increasing herd efficiency is vital.

Furthermore, the Sub-Panel believes that the importation of bovine semen offers the best chance of achieving better herd efficiency, giving a better return to farmers, stabilising or even reducing the price of locally produced milk, and thereby avoiding the importation of liquid milk.

9.2.1 The export trade in pedigree cattle

In the past, the export trade in pedigree cattle provided a significant source of income and an important industry for the Island's dairy farmers, with up to 2,000 head of cattle being exported annually.[60] However, as explained in the submission from the RJA&HS:

"The five year average of cattle exported from 1946 was 1,800 head but by 1995 this had fallen to 87 head, and even this is inflated through the inclusion of an exceptional movement of an entire herd relocating to the UK… Current market prices for average Jerseys in the UK range from £1,200 to £1,500, a price at which it would be attractive to rear surplus heifer calves for export, however local cattle are not achieving these prices due to their low breeding potential and productivity."

[58] MAFF (1975). *Energy allowances and feeding systems for ruminants. Reference book 433.* HMSO, London.
[59] Van Arendonk, J.A.M., et al. (1991). Genetic aspects of feed intake and efficiency in lactating dairy heifers. *Livestock Production Science, 29,* 263-275.
[60] Submission from RJA&HS, p.5

This issue was referred to by Mrs Le Feuvre during her attendance at a Public Hearing, where she made the following comment with reference to a dairy herd in the UK:

"They can sell any number of their surplus animals and I thought, as a cattle breeder who does a reasonable job, I could be part of that action and unfortunately people do not come to this Island to buy cattle and that is one of my main reasons to want to import because I can see that - - we milk about 125 cows, we do not want to get any bigger but selling cattle at say an average of £1,500 which is the going rate at the moment, would be a profitable exercise for us."[61]

The following statement was made by Mr R Gammon, from the Canadian Jersey Cattle Association, during a meeting with the Sub-Panel:

"I will be quite blunt with you, the Jersey Island bulls are absolutely at the bottom of the heap. To put another answer on your question, our people would not give any consideration to using semen from Jersey Island bulls, no, full stop, would not consider it. They could not. They have to be profitable dairy farmers."[62]

The RJA&HS were asked during their attendance at the Public Hearing whether they believed there could be an increase in the export trade in live cattle if the ban on the importation of semen was lifted:

Mr. P. Houzé:

"We have absolutely no doubt about it whatsoever. We just have to look at the situation right across the world, really, and look at the demand... You know, the percentage of income that is achieved in the U.K. by U.K. Jersey farmers, some would claim that 30 per cent of their income comes from stock sales."[63]

A submission from Mr B Leslie, an Australian breeder, auctioneer and judge, who attended the World Jersey Cattle Bureau Conference, made the following statement:

"I am sure if semen is allowed in you on Jersey will see renewed interest in the Breed, I know we would certainly be interested in embryos, I left Australia on this trip

[61] Transcript from Public Hearing, 16th June 2008, p. 4
[62] Transcript from meeting with attendees of the World Jersey Cattle Bureau Conference, 21st May 2008, p.29
[63] Transcript from Public Hearing, 16th June 2008, p.39

hoping to find cows we could import embryos from. I found the cows but couldn't find the right Sires."

However, it was not unanimously believed that improved genetics would rekindle the Island's dwindling export trade. Ms K Le Ruez stated the following in her submission to the Sub-Panel:

"Why would buyers come to Jersey, when they already have the so-called "improved genetics" in their own countries? If we import the genetics, we are just getting what they already have and there would be the added freight costs of getting the animals from Jersey, which is one of the reasons that the export trade from Jersey has lessened in recent times. "

The fact that there is currently a very limited export trade in the sale of surplus heifers overseas also has other ramifications, as explained in the submission from the RJA&HS:

"In Jersey some 700 heifer calves per annum, not needed for herd replacements, are culled at 24 hours of age. These, with the right breeding, could be sold as export breeding stock and provide additional income for the farm, the number of heifers exported could be further enhanced by the use of sexed semen reducing some of the 1,400 bull calves per annum currently also culled at 24 hours old. In an age of food shortage it is a shocking waste that we in the Island are the only Jersey population known to be doing this."[64]

This issue was elaborated upon further in a subsequent Promar report as follows:

"At the moment, half of all calves born are Jersey bull calves, most of which are disposed of at 24 hours of age. Approximately another 25% of calves born are heifer calves, but sired by the Jersey stock bull rather than a high quality proven bull. These too are disposed of. Currently, this amounts to approximately 2,000 new-born calves per annum that are disposed of in Jersey."[65]

[64] Submission from RJA&HS, p.5
[65] Promar International: Importation of bovine semen to Jersey. Final report (June 2008) p.16

Conclusion:

Worldwide there is a healthy trade in breeding Jersey heifers, but Island-bred animals play no part in it at present and 700 unwanted heifer calves are culled annually. The Sub-Panel agrees wholeheartedly with the RJA&HS that in an age of worldwide food shortages it is a shocking waste that Jersey is the only Jersey population known to be doing this. The unwanted heifer calves are more likely to be saleable if they are by an internationally known sire. Costs of rearing one for sale are about £700 and the sale value might be £1,500, a useful margin. Promar[66] estimate "perhaps 2-300 head" would be exported per year. One might deduce an apparent profit of £240,000 (compared with the total paid, for milk, by Jersey Milk Marketing Board in 2008 to producers of £4,708,000[67]). This argument for the importation of bovine semen therefore has merit.

9.3 To support the majority of farmers who wish to import semen

The submission from the JMMB explains that from recent surveys, over 75% of current milk production in the Island comes from farms of milk producers who support a change to the Law.[68] The submission from the RJA&HS goes on to state:

"The most recent poll[69] indicates that 53% of producers are in favour (15.5 of the 29 producers), who form 72.5% of the cows (2,236 of 3,084) and produced 76.4% of the milk delivered to Jersey Dairy in the last year."[70]

Concerns have been raised regarding why it was only the dairy farmers who were polled on this issue, rather than the wider membership of the Society as a whole. With reference to this, the submission from the RJA&HS explains:

"The issue is clearly of particular importance to the current dairy farm businesses (being some 29), as compared to the broader membership of the Society (being some 700 individuals), as it is the profitability and livelihood of those farm businesses that will be affected by any decision on the issue."

[66] Promar, op. cit. p.19
[67] Jersey Milk Marketing Board Report and Financial Statements, 21st March 2008
[68] Submission from JMMB, p.1
[69] Dated 28th April 2008
[70] Submission from RJA&HS, p.1

The Sub-Panel accepts that dairy farmers are not the only stakeholders involved, but appreciates that there would not be a dairy industry without the local farmers involved. The level of unhappiness and frustration within the current industry must therefore be considered fully. As explained by Mr Perchard in his submission to the Sub-Panel:

"Job satisfaction can only go so far and profit has to figure somewhere in the equation. There is a misguided and dangerous view that Jersey will always have dairy farmers, come what may. ***I have a surprise for people who, from the comfort of their armchairs or St Helier offices, delude themselves with this view and I maintain that the industry has never been more vulnerable than it is now.*** *The threats do not come from foreign milk imports or the "undesirable effects" of importation but from real and immediate concerns at home."*[71]

Conclusion:

Farmers are indeed stakeholders in this issue, however so are the public of the Island, who have subsidised the dairy industry for many years and who need to be convinced of the necessity for importation. This is a valid reason for the RJA&HS to be in favour of importation; however this in itself is not a reason to lift the ban on importation.

9.4 To complete a key part of the industry recovery plan

In February 2003 the Economic Development Committee commissioned Dr Donald McQueen to produce a report titled "The Dairy Industry in Jersey: A Strategic Review." The purpose of this review was as follows:

"To identify, for the dairy industry in Jersey, any changes that are needed in industry structure, organisation, operations and support to ensure that the industry will be financially viable – the changes to be consistent with the need to safeguard the interests of consumers, the wider interests of the Island and the natural environment, safeguard the future of the Jersey breed in the Island, and ensure that support for the States of Jersey is cost-effective."[72]

[71] Submission from Mr R Perchard
[72] Dr D McQueen, The Dairy Industry in Jersey: A Strategic Review, p.3

Following this report, the JMMB instigated a 'Road Map for Recovery' which was a long-term strategic plan for the Dairy Industry as a whole with advice from Bruce Woodacre, a leading UK dairy consultant:

"The underlying principle of the 'Road Map' was that for the Industry to have any sustainable future, then the threat of milk imports had to be dissipated by ensuring that locally produced milk was competitively priced rather than relying on the States Assembly of the day to maintain the existing controls."[73]

The JMMB outline three "central planks" for achieving this principle, one of which is to improve farm efficiency through self-help initiatives but particularly through access to proven worldwide genetics of the Jersey breed.

The submission from the JMMB goes on to conclude:

"The debate on P.43/2008 is therefore not just about the semen issue; I would respectfully suggest it is also about ***a vote of confidence in the Island's Dairy Industry*** *and support for its strategy for the future."*[74]

During a Public Hearing, representatives from the JMMB were asked what the implications would be of not lifting the ban on the importation of bovine semen. The following response was received:

Mr A. Le Gallais:

"The simple answer to the question of not lifting the ban is that there would be, in our opinion, uncertainty of long-term milk supply. The reason we state that and we state it quite categorically is that over 75 per cent of current milk production in the Island is from farms whose principals are in favour of importation of semen. We believe in the long-term situation that long-term milk supply from those farms might be in jeopardy if the change to the law is not made."[75]

[73] Submission from the JMMB, p.1
[74] Submission from the JMMB, p.5
[75] Transcript from Public Hearing, 16th June 2008, p.2

Conclusion:

Jersey Dairy has explained that their viability depends on efficiency at farm level and there being an assured supply of adequate volumes of locally produced milk. This argument has merit if it can be shown that no other proven programme of genetic improvement is as likely to succeed.

9.5 Are there alternative proven schemes available?

One issue that was raised during the course of the Sub-Panel's review was the question of, if semen imports were not permitted, where would the industry turn from here? As explained in Mr Houzé's submission to the Sub-Panel:

"To date there has been no alternative strategy put forward, nobody has indicated a different course to Dr Bichard's proposal, not at the public meetings where he presented his views or at any of the many subsequent meetings held at the Society."[76]

Mr Perchard's submission highlighted the failure of past breed improvement initiatives:

"Yet, having thrown ourselves so whole-heartedly into supporting and operating the JBPS it was disappointing (though not at all unpredictable) that the results were to prove so mediocre. True, the scheme did succeed in proving a number of bulls but in all too many cases these were proven to reduce yield or be detrimental to conformation or milk quality… The JBPS has shown us that there is too little genetic variation in the Island and cattle numbers are too low to achieve the significant improvements needed to put the Island Jersey back in the premier division of world breeding."[77]

During the Sub-Panel's review, the possibility of an alternative scheme such as an Open Nucleus Breeding Scheme, or modern genetic approaches such as marker-assisted selection or whole-genome scanning (see for example chapter 6 of Simm, 1998)[78] was discussed with the RJA&HS. The response explained that these

[76] Submission from Mr P Houzé, p.2
[77] Submission from Mr R Perchard, p.1
[78] Simm, 1998, op.cit.

approaches would simply not be practicable in the Island, for several reasons, including the following:[79]

- *The current system of genetic analysis, whether PLI or for other traits, (through Dairy Co & Interbull) is sufficiently reliable for us to identify the top animals and it is doubted whether an ONH would in any substantive way alter the current list of Island's top 150 cows (the best 5% of population).*
- *The current situation of the Island's top 10 bulls being of lower genetic merit than the top cows inevitably means that genetic progress is being reduced. An ONH would have little, if any, effect in the short to medium term on this within the 'half closed' Island herd.*
- ***The concept of an ONH, if properly done, would require the establishment of a new dairy holding where these animals are housed and managed independently of current producers. The cost of this and planning implications make it extremely unlikely without a financial investment from an unidentified source in the order of £1m to £2m and considerable time delay.***

The RJA&HS also indicated it was aware of modern developments in animal breeding, and the Sub-Panel was pleased to note that research is proposed in these areas.

Conclusion:

The Jersey Bull Proving Scheme was one such alternative, but it did not lead to elite bulls being identified. Other possible schemes do exist and the RJA&HS has taken note of them. However, their explanations as to why these are not practicable in the Island context are reasonable and this argument therefore has merit.

9.6 Guernsey

The Sub-Panel decided to investigate the position in Guernsey and visited two farms on the Island and the States Agriculture and Environment Advisor.

The Bovine Semen and Artificial Insemination Ordinance, 1957, as amended in 1971, permits the importation into the Island of Guernsey of bovine semen from specified

[79] Further responses from the RJA&HS – Breeding schemes and genes of large quantitative effect – 24th June 2008

breeds[80] and allows the insemination of bovine animals with semen from bovine animals registered in the Herd Book of the Royal Guernsey Agricultural and Horticultural Society[81].

There are safeguards in place to maintain the purity of the herd by preventing further breeding from animals bred from imported semen, principally through the requirement that male progeny resulting from artificial insemination from imported semen must be castrated before the animal reaches the age of six months[82] and any bovine animals resulting from artificial insemination from imported semen must be slaughtered before it is two years old[83]. Thus it is guaranteed that there will only be first generation crosses.

The Sub-Panel was informed[84] that Guernsey's breeding policy was based largely on two reports written by a leading United Kingdom cattle geneticist, Ken Deeble, for the States of Guernsey in 1975 and 1977. These reports have been supported by a more recent report by Dr. M. Bichard in 1998. Guernsey chose to import semen from highly proven and selected bulls in order to avoid '*the risk of serious inbreeding and further narrowing the genetic base of the breed*[85]'.

The States of Guernsey Agriculture and Environment Advisor informed the Sub-Panel:

"The scheme that was developed under Dr Bichard's advice is known as the 'Guernsey Global Breeding Programme' and is considered to be a model for the improvement of small breeds of cattle throughout the world. This has stimulated considerable genetic improvement in Guernsey cattle that can be seen both in improved milk yields and in improved animal conformation (that is the structure of the animal's legs and udder) which leads to a longer useful life in the dairy herd[86]."

[80] Article 2A(1)
[81] Article 4A(2)
[82] Article 4A(5)
[83] Article4A(10)
[84] e-mail dated 2nd July 2008 from Dr A. Casebow, States of Guernsey Agriculture and Environment Advisor
[85] Deeble report for the States of Guernsey 1977
[86] Casebow, op. cit.

10. The objections to allowing imports of semen

During the course of its review, the main objections that were heard to lifting the ban on the importation of semen can be grouped under the following headings, each of which will now be discussed in turn.

10.1 Erosion of the Island's heritage

Throughout the course of the Sub-Panel's review concerns were voiced regarding the implications this proposal could have for the Island's heritage, given the iconic status of the Jersey cow.

As was stated in the submission from Deputy Juliette Gallichan:

"The Jersey cow is a lot more than just a machine to convert grass into milk, it is a symbol of Jersey success, of the way in which a small island can influence the world and that culturally it belongs to every islander. The question is - does a relatively small number of people have the right to change forever the way in which the Jersey Cow looks and behaves?"

The concern that this decision affected the Island as a whole rather than simply those in the dairy industry was one raised by several submissions to the Sub-Panel:

"A decision could be made shortly to allow the importation of not just Jersey cattle semen, but the semen from any breed of cattle. Many milk producers, cattle breeders and a large number of the general public are rightly concerned that this would have a detrimental effect not only on the dairy industry, but for Jersey as a whole and would destroy a vital part of our Island heritage."[87]

Similarly, a submission from Mr Walker, who has been involved in the Island dairy industry for the past eleven years, believed that part of the Island's heritage should not be destroyed for a small financial gain. A submission from Ms Le Ruez, whose family has been involved in the breeding of Jersey cattle for generations, expressed concern that after the hard work of those that have dedicated their lives to breeding the Island Jersey cow, the ban on semen imports would be lifted for commercial reasons, removing more of the Island's heritage forever.

[87] Submission from Mr G Le Marquand

Conclusion:

It is almost impossible to assess how much of the iconic status of the Island Jersey is attributable to the reproductive isolation of the current breed. Should the ban on semen importation be lifted, it is possible that some breeders may wish to retain local breed isolation by not using imported semen. A modification to the Jersey Herd Book would be required to ensure that such animals are easily identifiable.

10.2 Implications for the pedigree of the Jersey Island cow

This issue was one of the most frequent concerns raised during the course of the Sub-Panel's review. This section will cover the various concerns that were raised regarding this issue, and will then outline the various safeguards that are being put in place to overcome these concerns.

Imported Semen may not in fact be pure Jersey

There are two concerns regarding herd book entries; the inclusion of "graded-up animals" and general errors in past herd books.

1. "Graded-up animals":

As outlined in one submission to the Sub-Panel:

"It has become very popular in overseas countries to crossbreed animals with Jerseys and in these countries (e.g. USA, Canada, New Zealand) it is the accepted norm. After several generations, the offspring can be 'graded-up' until they become known as pedigree Jersey. Even with DNA testing, there is still a risk that a non-pure Jersey could be imported."[88]

This is an issue covered in the submission from the RJA&HS, where the following statement is made:

"It has further been asserted that their Jerseys are somehow not 'pure' as they include other breeds bred up to be pedigree. The pedigree status of a registered Jersey in the Island is the same as that in the USA, Canada or any other country, in that its pedigree can be researched and established. The recent inclusions in the

[88] Submission from Ms K Le Ruez

Jersey Herd Book rules would specifically eliminate any so called 'graded up' animals."[89]

This was further discussed during the Public Hearing with the RJA&HS:

Professor S. Hall:

"So a bull with a graded up animal in his pedigree would not be acceptable?"

Mr. J. Godfrey:

"Correct."[90]

Deputy P.J.D. Ryan:
Okay. So I think the question is in very simple layman's terms we can rest assured that there would be no access to a compromised gene pool that way?

Mr. J. Godfrey:
Yes. To put it another way, we can be rest assured that the integrity of our pedigree Jersey herd book will be of exactly the same status as it is now.[91]

2. General errors in past herd books:

Based on research in UK dairy herds and elsewhere, it is estimated that over the past 30 years, 10% of pedigree entries in the UK have been wrong.[92] Errors can arise in many innocent ways, such as adoption of calves by other cows.

The RJA&HS will impose rigorous conditions on the pedigree acceptability of bulls proposed as Artificial Insemination (AI) sires. The concern is that while much of the pedigree record of an individual animal will have been validated by genetic tests (cattle parentage verification, initially by blood groups, has been widespread since the 1960s), a proportion of its pedigree will not have been. Nor will it be possible to validate the entire record *post hoc*, because although semen samples of bulls used in the past may be available, genetic material from the female lines will be incomplete.

[89] Submission from RJA&HS, p.2
[90] Transcript from Public Hearing, 16th June 2008, p.11
[91] Transcript from Public Hearing, 16th June 2008, p.12
[92] Visscher, P.M., Woolliams, J.A., Smith, D., & Williams, J.L. (2002). Estimation of pedigree errors in the UK dairy population using microsatellite markers and the impact on selection, *Journal of Dairy Science, 85,* 2368-2375.

This concern was raised during the Public Hearing with the RJA&HS:

Professor S. Hall:

"The D.N.A. techniques have been widely available and used only for what, 3 generations, 2 generations?"

Mr. J. Godfrey:

"Well, yes, I suppose."

Professor S. Hall:

"Before that you had cattle blood typing on the basis of immunology and that started in the 1960s, but even so there is still quite a gap where, you know, something might be in the pedigree and it might not actually have been proved."

Mr. J. Godfrey:

"Well, it is possible but it is a question of focusing on whether the glass is half full or half empty. The point is that pedigree cattle breeders whilst in the past may have tried to ... going back a long way, there may have been an advantage in trying to register animals that were not who they say they were. I think these days we are so much more able to catch up with that kind of activity, I just do not really believe it happens. It certainly does not happen here. We do get cases here of animals being registered or put forward for registry who are not who they are, but that is a mistaken identity and those are ... the fact that we pick them up I think gives me the confidence that the system is robust."[93]

The submission from the RJA&HS includes consideration of the operation and probity of Jersey herd books. Up until recently, the herd book was written to only encompass animals within the Island, however in January 2008 the Jersey Herd Book Rules were amended to accommodate the possibility that the importation of semen would be permitted, and to ensure that the integrity of the pedigree status of the Island herd is maintained:

"The key inclusion is that the Society would only allow registration of an animal into the Herd Book if its dam (mother) was born in Jersey (i.e. seeking entry due to imported semen) will only be allowed if he has at least a seven generation pedigree,

[93] Transcript from Public Hearing, 16th June 2008, p.8

registered with an official registry of the status of the Jersey Herd Book, and have no known ancestor of any other breed."[94]

The Sub-Panel discussed these precautions during a meeting with attendees of the World Jersey Cattle Bureau Conference, to establish whether experts from around the world were confident that they were adequate to protect the pedigree of the Jersey cow. It was explained that the international standard for a pedigree is three generations, and the rules in the Jersey Herd Book therefore more than doubles this standard. Dr Curt Van Tassell (research geneticist, United States Department of Agriculture) made the following statement:

"From a scientific perspective I think there is no question that that requires a level of certainty of Jersey content and the germ plasma that from a scientific and genetic improvement perspective is absolutely sufficient. Whether there is any concern beyond that of, you know, the mystique of the Jersey breed as a marketable icon, I mean, that is not a scientific question."[95]

In addition the RJA&HS have stated that they will not hold Holstein/Friesian semen in their AI centre. Anyone wishing to import Black and White semen for crossing purposes will therefore have to finance their own AI facilities.[96]

Any imported semen would be DNA tested to establish its authenticity and certification would be required from the registry of origin.[97]

The DNA process was explained by Mr Hambrook from the RJA&HS during a meeting with the Sub-Panel:

"Ultimately to register in our Herd Book, any bull registered in the Herd Book if it were born locally would require DNA testing along with that of its dam. So, on that basis, its sire would also have been DNA tested, so we would have a DNA profile for the dam, the sire and the individual bull, and there must be a positive match. We send ... how we do that is we send a hair sample with a follicle, so a little bit of skin sample, in effect, goes off to Weatherby's, who are the DNA testing organisation mainly

[94] Submission from RJA&HS, p. 2
[95] Transcript from meeting with attendees of the World Jersey Cattle Bureau Conference, 21st May 2008, p.8
[96] States Dairy and Livestock Adviser, Email Correspondence, 9th July 2008
[97] Submission from RJA&HS, p.2

specialising in race horses, and they assess to I think it is 12 markers on a DNA strand to establish the proof of parentage."

The submission from the RJA&HS claims that assertions that pedigree registers in other countries are in someway 'unreliable' or 'untrustworthy' are simply not true, as breed societies around the world take their responsibilities as seriously as the RJA&HS does.[98] During his attendance at the Public Hearing with the Sub-Panel, Mr Frigot gave a summary of when the various herd books in other countries originated:

"The Jersey Herd Book in the Island, 1866; the American Jersey Herd Book, 1871; the English Jersey Herd Book, 1879; the Canadian Jersey Herd Book, 1912, and, in fact, prior to 1912 they registered their cattle in the American Herd Book; New Zealand, 1905; Queensland, Australia, a similar year and the South African one started in 1940 -- sorry, that was volume 3. I think they started again around the 1920s. Denmark was the other country; they started their Herd Book in 1902."[99]

The accuracy of overseas herd books was discussed in the Public Hearing with the RJA&HS:

"All countries that we associate with, particularly with the Jersey breed, take the running of their registries and herd books equally as seriously as we do, so we are very content that if we ask for certification from a herd registry in another country, Canada for example, if we ask for a 7-generation pedigree of an animal to be -- of a bull of whom semen could be imported from, we are very content that that pedigree is reliable and accurate."[100]

A further safeguard to the protection of the pedigree Jersey cow is the fact that the Jersey Milk Marketing Board will only take and produce milk from animals registered in the Jersey Herd Book. This safeguard is highlighted in the submission from the Jersey Milk Marketing Board:

"Regulating that all milk supplied to the Dairy must be from cows registered in the Jersey Herd Book which are milk recorded each month (implemented in 2005); this

[98] Submission from RJA&HS, p.2
[99] Transcript of Public Hearing, 20th June 2008, p.31
[100] Transcript of Public Hearing, 16th June 2008, p.3

binds together the all-important relationship between the JMMB and the RJA&HS, underpinning the marketing strategy with milk from pedigree Jersey cows only"[101]

Conclusion:

It is possible that if the ban on semen was to be lifted, imported Jersey semen could in theory include rogue genes, so this objection to lifting the ban on the importation of semen has a degree of merit. An absolute safeguard to this is not available, but the threat needs to be kept in proportion. The Sub-Panel is happy that overseas herd books are as accurate as the Island's, and is reassured by the robust nature of the safeguards that have been put in place by the RJA&HS.

Overseas Jerseys may not be appropriate for the Island

The submission from Mr N Blampied stated:

"The principal reason for importing genetic material is the possibilities of producing extra milk with fewer cows. The cost efficiency of extra food to produce extra milk from larger cows has not even been addressed. Land and food is more expensive in Jersey than other parts of the world."

This statement highlights the belief that imported Jersey genetics would lead to larger Jerseys being bred on the Island. Similar comments were made in another submission to the Sub-Panel:

"There is also the issue of size. Obviously larger animals are likely to produce more milk and, I have heard it argued, will therefore be more profitable. The relatively small Island Jersey cow is uniquely beautiful and suited to her home. Big is not necessarily better, and Jersey does not have the pasture available in other countries such as the US, for animals to grow bigger. Bigger animals are likely to need more food in the form of concentrates, which will cost the farmer more overall."[102]

However, the Sub-Panel discussed this issue during its Public Hearing with Mr D Frigot, who explained the following:

"The Jersey cow is on average one inch shorter that the U.K. Jersey cow. Now, the U.K. Jersey cow is exactly the same size as the U.S. (United States) Jersey cow… if

[101] Submission from JMMB, p.2
[102] Submission from Mrs J Hawkes

you can tell me that one inch is suddenly going to make all cows that much bigger, it is not true."[103]

This was also a matter that was raised by Mrs Vint during her attendance at a Public Hearing:

"The comment in some of the media that the animals would look physically different and that they would be giants and I have a wonderful thing here which I am very proud of and this is a photographic record of the whole of our herd in the last month or so before they were sold. I just picked out the first double page that I could and it is all by line number and 2 of these are American genetics and 2 of these are Island genetics and they are - I mean, one is a bit prettier than the other, maybe - all sound animals. There is no particular difference in stature. They have got all the good traits you want in a mature milking cow and I think it is quite important to take that on board; that they do not turn out to be giants or anything else."[104]

A submission from Dr S Funk, Durrell Wildlife Conservation Trust, also raised concerns regarding the implications of imported bovine semen for the Island's genetics, and the subsequent consequences for Jersey's milk attributes:

"It should be considered whether the improved milk yield elsewhere has impacted other variables such as fat content. It seems that improved Jersey herds produce more milk but with lower cream content. The high fat, rich creamy milk of the autochthonous Jersey herd has distinguished it from other breeds and has acted as a Unique Selling Point."

However, this was considered by Mr Frigot during his attendance at the Public Hearing, where the benefits that would be available to local breeders through access to improved genetics were explained:

"There are a range of genetics available and I do not believe Jersey farmers would search for extremes of size, of production or whatever other trait. They would look for an improvement of quality in specific areas of the cow. An instance of that would be if within a farm somebody has, say, 100 cows he is going to have 10 cows that are, say, over 6 per cent butter fat. He will have another 10 cows that will be under 5 per cent butter fat. The average of the herd might be 5.3, 5.25, 5.4 per cent or

[103] Transcript of Public Hearing, 20th June 2008, p.4
[104] Transcript of Public Hearing, 16th June 2008, p.10

something like that. So the lower butter fat cows, he will use a bull that will improve that trait if he wants to improve that trait."[105]

Conclusion:

It will be possible for local breeders to use imported semen specifically focussed on the traits that they wish to improve within their herds. The concern that the use of imported bovine Jersey semen would lead to a "different looking cow" is unfounded. If imported semen were permitted, the range of sires available is broad enough to enable each farmer to choose appropriate semen for his/her own breeding objectives.

The introduction of non-Jersey cattle

This was an issue that was raised in the arguments both for and against the importation of semen. Despite the safeguard imposed by the JMMB whereby the dairy will only produce milk from cows registered in the Jersey Herd Book, if the ban on the importation of semen were to be lifted, there would theoretically be nothing to prevent a dairy farmer from importing non-Jersey semen and starting a herd of non-Jersey dairy cattle, or cross breeding to produce beef cattle. Although this would require the farmer to process the milk through his or her own dairy, this would still result in Islanders seeing non-Jersey cattle in the fields, and possibly non-Jersey milk on the shelves. A pure breed Jersey cow would not be precluded from continuing to supply milk to the local dairy as a result of the calving of a cross bred progeny.

This is an issue which is covered in the submission from the RJA&HS, where the situation in Guernsey is used as an example:

"Although semen is not restricted to just the Guernsey breed some 70 beef cross animals are raised each year for the local beef market without affecting the integrity of the pedigree Guernsey herd in any way."[106]

Mr Perchard similarly used the opportunity for limited beef production as an example of the outlook for the future, if the ban on importation were to be lifted, however he felt this would be limited, as has been the case in Guernsey.[107]

[105] Transcript of Public Hearing, 20th June 2008, p.6
[106] Submission from the RJA&HS, p.6
[107] Submission from Mr R Perchard

However, this was not seen as an opportunity for all witnesses who sent submissions to the Sub-Panel for this review. Mr S Luce sent a submission to the Sub-Panel, explaining that until very recently he had been a supporter of the importation of semen, however recently has had to reconsider this position for several reasons, one of which being the following statement:

"We now find that it will be possible to import semen from any breed we choose. Jersey Dairy will state that they will only accept milk from pure Jersey herds, but (under the new Jersey Dairy rules) there is nothing to stop people processing their own milk. This means that a farmer that wishes to take a very commercial line may well decide to keep "black and whites", process his own milk, and have no Jersey cows on his farm. That is absolutely not what the public of this Island have in mind when they offer support for our industry."[108]

Mr Quénault similarly made the following comment in his submission to the Sub-Panel:

"The importation of genetics cannot be limited to pure Jersey semen, and would lead to the importation of beef semen, embryos and eventually live cattle, changing Jersey's countryside forever."

However, there are numerous disincentives to local farmers in terms of the introduction of a non-Jersey dairy herd.

The States Dairy and Livestock Adviser explained the changes that would need to be made to a local farm to accommodate Holstein or Friesian cows:

"Holstein/Friesian cows are much larger than pure Jersey cows. (A Jersey weighs on average 430kg a Holstein/Friesian cow weighs approximately 650kg). Replacing a Jersey Herd with a Holstein/Friesian herd on a dairy farm in the Island would therefore result in considerable alterations to the infrastructure of that farm. The cubicle beds, passage ways, feeding spaces, holdings pens, together with the stalls and equipment in the milking parlour would all be too small for large black and white cows. The first cross Holstein/Jersey would be of intermediate size again too large for the farm infrastructure in Jersey therefore the necessary building alterations would have to be completed before the first female progeny of the Holstein bull began to produce milk. Housing large animals in unsuitably designed buildings

[108] Submission from Mr S Luce

would be an animal welfare issue and could lead to prosecution under the Animal Welfare (Jersey) Law 2004. A new dairy unit on a green field site has been costed in Jersey at £5,000 to £6,000 per cow place, major alterations as envisaged in the change from Jersey cows to Holstein/Friesians cows would therefore amount to a considerable sum for any commercial dairy operation."[109]

As well as the alterations that would need to be made to a local dairy farm to house Holstein or Friesian cows, any farmer contemplating a change to a non-Jersey herd would also have to process and market his or her own milk and milk products. As explained by the States Dairy and Livestock Adviser, this would amount to a further sizeable investment:

"The capital involved in building a milk processing unit is again considerable, running to several £100K. There would also be a need for comprehensive market research prior to the start of such a venture to gauge the attitude of the Jersey public. If this new business was seen by its prospective Jersey customers as a 'threat to the Jersey cow in her Island home' the whole economics of the proposed venture would be very doubtful."[110]

The introduction of a non-Jersey dairy herd would also have further implications, as the milk price received by dairy farmers is not solely based on the volume of milk, but also on the % of butterfat and/or protein content. As explained by the States Dairy and Livestock Adviser:

"1.5 Jersey cows (430kg x 1.5 = 645kg) produce the equivalent to 1 Holstein/Friesian (650kg) at approximately the same feed costs. However, the Holstein/Friesian does not produce the high quality of milk that a Jersey cow produces; the butterfat content of Holstein/Friesian milk is approximately 3.5% whilst the Jersey produces 5.4% fat (protein 2.6% to 3.8%). The milk price received by dairy farmers is not solely of the total volume of milk sold but is also based on the % of butterfat and/or protein it contains. The higher the butterfat/protein the higher the milk price received. With the above in mind, together with the fact that imported semen is set to improve milk output per cow and increase butterfat and protein milk content, it is extremely unlikely

[109] States Dairy and Livestock Adviser, Email Correspondence, 9th July 2008
[110] States Dairy and Livestock Adviser, Email Correspondence, 9th July 2008

that, as long as semen imports are allowed, any dairy farmer in Jersey would contemplate a change to black and white cows."[111]

It was further suggested by the States Dairy and Livestock Adviser that there is potential in the future to increase incentives for local farmers to keep pure Jersey herds:

"The RES (Rural Economy Strategy) 2006-2010 is due to be reviewed in 2009 and a new policy developed for consultation prior to a States debate in 2010. Options therefore exist to alter the current qualification conditions for QMP (Quality Milk Payment), SAP (Single Area Payment) and CRS (Countryside Renewal Scheme). It is perfectly possible that the conditions dairy farmers have to meet in order to receive QMP could include the keeping of pure Jersey cows to safeguard the future of the Jersey cow in her Island home. The SAP is a general support payment to encourage all commercial agricultural activity in the countryside to ensure its future maintenance and the CRS is about environmental improvements both of which are not exclusive to the Jersey cow and therefore the conditionality would be harder to adapt."[112]

Conclusion:

a) Current controls on the breed origin of milk sold to Jersey Dairy mean an incentive to increase milk yields by crossbreeding Jersey cows with (for example) Holsteins or Guernseys is absent, however, a farmer processing his/her own milk would not be inhibited.

b) Male dairy calves have no commercial value and are usually culled at a day old. If dairy cows are inseminated with beef breed semen, the calves have beef (or veal) potential. A proportion of cows in a herd would be available for such insemination (those from which the farmer does not wish to keep daughters; first-time breeders whose productivity is not yet known). Keeping beef cattle is not attractive in Jersey because of high land rents, so more likely scenarios would be the development of housed veal systems or the production of beef cross dairy calves for the limited local beef meat market. These scenarios do not fit with the "brown cows in green fields" concept.

[111] States Dairy and Livestock Adviser, Email Correspondence, 9th July 2008
[112] States Dairy and Livestock Adviser, Email Correspondence, 9th July 2008

The Sub-Panel carefully considered the dangers inherent in the importation of non-Jersey semen and the likelihood of a significant non-Jersey herd becoming established in the Island (see page 48 of this report). However, on balance the Sub-Panel was satisfied that the relatively large commercial disadvantages of farming a crossbred herd combined with the very small market size for either beef or even locally produced non-Jersey milk with on-farm processing, were sufficient disincentives to ensure that the establishment of any sizeable non-Jersey herd is very unlikely.

However, in the current climate where there is a growing awareness of issues such as “food miles”, in the future there is likely to be an ever increasing move towards supporting and relying on local produce, including beef.

Recommendations:

a) The Sub-Panel strongly recommends that the Economic Development Department should do all it can to ensure that the economic advantages for local farmers in keeping purebred Jersey cattle are maintained in the long-term. This should include considering changes to the Rural Economy Strategy when it is reviewed in 2009, to include conditions to safeguard the purebred Jersey cow.

b) The Sub-Panel respects the concerns raised in relation to Island heritage. It therefore recommends that the RJA&HS ensure that facilities are made available for farmers who do not wish to use imported semen. These would involve:

(i) modification of the registration system so animals that have not been bred through the use of imported semen are identifiable in the Herd Book; and

(ii) provision of advice on matings with a view to maintaining genetic diversity in that segment of the breed.

Stores of frozen semen and embryos must be reviewed so the full spectrum of pre-importation genetic variation is represented, and consideration given to storing representative samples off the Island as well as in Jersey.

The Sub-Panel understands progress has already been made in this respect with the USDA-ARS[113] in terms of maintaining a subset of historic semen collection in Colorado, and these negotiations should be continued.

10.3 Disease risks

The report by Dr Bichard accepts that the history of livestock improvement does include examples of serious diseases having been introduced, or increased, through transfer of breeding animals, and even fresh semen. This is qualified as follows:

"On the other hand there is a great deal known about the transmission of many pathogens, and genetic material is constantly being shipped around the world without causing harm to the recipient."[114]

The submission from the RJA&HS states that both from an official government stance and private practitioners, that there is very little risk of importing any disease through frozen semen where the recognised protocols are being followed.[115]

If the ban on the importation of semen were to be lifted, the protocols that would need to be followed would be under strict veterinary supervision, which would fall under the remit of the States Veterinary Officer, Mrs. L.J. Lowseck BVM&S MRCVS. The Sub-Panel asked Mrs. Lowseck MRCVS to outline the health checks and quarantine arrangements that are made on donor bulls and on their semen to ensure the biosecurity of the (AI) process and the response can be found on the Scrutiny website.[116] Jersey would enact by order all of the requirements set by the EU for the control of disease in AI, if the ban on the importation of semen was lifted.

It is believed by the RJA&HS that the greatest threat to the Island herd from imported disease is likely to come through wind-born virus, for example Foot & Mouth Disease.[117]

[113] United States Department of Agriculture, Agricultural Research Service
[114] Bichard, op. cit, p.22
[115] Submission from RJA&HS, p.5
[116] www.scrutiny.gov.je
[117] Submission from RJA&HS, p.5

Conclusion:

Although this concern is understandable, the Sub-Panel considers the risk to be minimal. The international semen trade is heavily regulated and health controls relating to infectious disease are strong. While it would be rash to say disease risks do not exist, they must be kept in proportion.

10.4 Increased inbreeding could result from the excessive use of a small number of Artificial Insemination sires

This was an issue that was raised in the submission from Dr S Funk, Durrell Wildlife Conservation Trust, who made the following statement:

"The import of semen might in turn not achieve the stated goal of reducing inbreeding and of preventing reduction of the gene pool, which the proponents have highlighted as one of the aims. Conversely, inbreeding might increase as male effective population size might dramatically decline. For example, imports from Canadian populations with higher performance have negatively affected the genetic diversity of the Hereford in the British Isles."[118]

This concern was similarly raised in the submission from Mr Quénault, who felt that the importation of semen could increase the risk of inbreeding due to the possible widespread use of a small number of top-rated sires.[119]

This was an issue that was raised during the Public Hearing with the RJA&HS, where they were asked what controls would be put in place to avoid the excessive use of semen from a small number of AI sires:

"We feel it is not the role of the Society to breed cattle for individual cattle breeders. We are there to help to facilitate and to advise, if necessary, and we think it is going to be necessary particularly in the early stages to give, you know, free advice and to help breeders along... Breeders will be free, as we see it, to import any bull they wish and that is what effectively the law will say. However, the Society has very, very

[118] Submission from Dr S Funk; Blott, S.C., Williams, J.L., Haley, C.S., 1998. Genetic variation within the Hereford breed of cattle. Animal Genetics 29, 202-211.
[119] Submission from Mr Quénault

clear rules and guidelines as to which progeny or progeny from which bulls they will register in their herd book."[120]

Conclusion:

This has clearly been shown in other cattle breeds, notably the Hereford in the UK. This argument against the importation of bovine semen therefore has merit.

Recommendation:

The RJA&HS must ensure that use of overseas AI sires must be monitored to avoid over-use of specific bulls.

10.5 Some Island cows produce higher yields

Throughout the Sub-Panel's review, farmers against the importation of semen voiced frustrated opinions that it wasn't necessary because they were content with the current yields of their herds. Mrs Hawkes submission to the Sub-Panel stated the following:

"I cannot see any evidence that Island-bred Jerseys are becoming genetically weaker. One has only to consider the quality of the animals at the RJA&HS Spring Show to appreciate that."

Similarly, Ms Le Ruez made the following comments in her submission:

"My late father and my mother only gave up being "registered producers" in 2002. My mother and I still maintain an active interest in that I own a cow which was Supreme Champion at last May's Island Cattle Show, indeed a great honour.

The judge, Mr Nick Dain from Norfolk, UK said of all the cattle at that show

"I was truly impressed by the scope, dairyness and size of these cows here today. These cows would stand up anywhere in the UK"

This does not suggest that we need to import genetics."

[120] Transcript of Public Hearing, 16th June 2008, p.4

Mr Quénault made the following comments during his attendance at a Public Hearing with the Sub-Panel:

"Personally my herd did over 6,100 litres 2 years ago and it is back heading that way now. We are now fully organic, myself, personally. I have a cow doing 42 litres of milk. I have the whole herd averaging over 21 litres. If you are telling me this is bad or this is unprofitable, I am telling you it is nonsense… We have cows which have done 10,000 litres. You do not get a cow doing 10,000 litres if she cannot produce milk and from that point of view, you have to question why the hell is you have cows doing 3,000 for."[121]

Conclusion:

Any population will show variation around the mean. Selection aims to increase the value of the mean, and the mean productivity has not increased on the Island. The question is whether there are enough cows with high yields to make selection realistic. In the Jersey context, the real value of these cows might be in the information they could provide about management of high-yielding cows. This argument against the importation of bovine semen therefore does not have merit.

10.6 Profitability would be increased by better herd management

This was an issue raised in a submission to the Sub-Panel from Mrs J Hawkes, who made the following statement:

"One can easily understand the desire, on the part of hardworking farmers and their families, to find a way of making money. However it seems to me that careful breeding and intelligent herd management, with efficient processing of the milk produced, are the key factors."

The States Dairy and Livestock Adviser produced a report for the Sub-Panel outlining the Island's dairy farmers feed rationing and forage quality. This report indicates that farms on the Island differ in management skills and style, with the larger commercial and more progressive farmers producing silages which have been shown by laboratory analysis to be comparable in nutrient content with those produced in the UK. The report goes on to state:

[121] Transcript of Public Hearing, 16th June 2008, p.13

"The more progressive dairy farmers in Jersey have invested in modern dairy farms and equipment equal to the most efficient dairy farmers in the UK. They have strived to overcome the structural difficulties faced by other Jersey dairy farmers to produce rations which are the equal of diets being fed to Jersey herds in the UK.

The frustrating thing is that these investments and management efficiencies are not resulting in the same milk output per cow in Jersey compared to the UK because the average Jersey Island dairy cow is genetically programmed to produce a lower milk yield."[122]

Conclusion:

The evidence of the States Dairy and Livestock Adviser indicates that farms differ in management skills and style. As mentioned in Dr Bichard's report, historically half of improvement in dairy performance has come from improved management and half from improved genetics. Although this argument has some merit, the Sub-Panel does not believe it is relevant to the current debate as it is applicable to both those who do and do not wish to import semen. Additionally, noting the importance of effective herd and farm management, including the choice and quantity of feed supplements, in achieving efficiency, genetic improvement is also a vital component. The Sub-Panel accepts that importation of semen is the most realistic strategy in the Jersey context of relatively small, independent operations.

10.7 Non-statutory means of restricting the breed of cows used locally

Deputy Gallichan's submission to the Sub-Panel made the following statement:

"Members were also told, however, at the second RJA&HS presentation that there was in fact only one company controlling the local trade in genetics and that it was unlikely that another importation centre would be established due to the cost factor. It was therefore possible to exert influence on the types of imported genetic material that would be easily available. I have not explored the question of a potential abuse

[122] Dairy Cow Management: Feed rationing and forage quality, June 2008 (Report produced by States Dairy and Livestock Adviser)

of monopoly position but it is possible that this could be an issue in future – I would ask for a comment on this."[123]

The Sub-Panel contacted the JCRA to receive their view on this, and their initial response was as follows:

"Your query essentially involves a dominant undertaking's refusal to purchase a product (i.e., its refusal to purchase certain genetics). Competition Law rarely, if ever, forces a dominant undertaking to purchase a product it simply does not want to buy. There is a very limited exception to this if the undertaking in question is considered to be an essential facility, but this is a very high test under EU Competition Law -- essentially, it would have to be shown that those wishing to purchase alternative genetics in Jersey would have no reasonable way to do so without absent dealing with the dominant undertaking, and that access to alternative genetics is indispensable for them to be able to compete. This is a very high threshold and, at first glance, would not appear satisfied here, although it would very much depend on the facts that are presented to us.

Alternatively, this also could be viewed as a dominant undertaking's refusal to supply a particular product (i.e., alternative genetics) in Jersey. There's a bit more precedent in this area, but again it is a very high threshold and very fact dependant. Key areas of inquiry would be how the lack of alternative genetics hurts the businesses of those wishing access to them and, critically, how consumers in Jersey would be harmed in terms of higher prices or less choice."[124]

Conclusion:

It is unclear whether it would be legally possible, under the Jersey Competition Law, for the likely sole importer of semen to refuse to import non-Jersey semen if asked to do so by a farmer. The JCRA's remit would be to investigate whether, based on the facts, such behaviour amounted to an abuse of dominance. The JCRA told the Sub-Panel that would involve assessing whether the importer was effectively an 'essential facility' or whether the behaviour amounted to an unjustified refusal to supply.

[123] Submission from Deputy Gallichan
[124] Mr C Webb, Email Correspondence, 19th June 2008

11. Conclusions

Summary:

In reaching a recommendation, the Sub-Panel first considered what the desired outcome would be and it was agreed that this is a sustainable and economically viable dairy industry on the Island, with pure-bred Jersey cattle grazing in the fields, as expressed by the Chief Minister in his letter to the Chairman of JMMB of 13 February 2007.[125] Central to this aim is the removal of any necessity or commercial incentive for liquid milk importations.

Legal implications (Section 8):

The Sub-Panel acknowledges the arguments against the importation of semen, in terms of concerns about the heritage of Jersey, and the likely requirement to admit semen and possibly embryos of other breeds. However, in order to comply with Protocol 3, it is not possible legally to restrict the use of any imported semen, embryos or ova and any quantitative restrictions on use once imported would be likely to contravene Protocol 3 as well.

Persistence of the liquid milk controls was extensively discussed. If semen importation **is not** allowed, there is a real risk of further erosion to the overall size of the local herd through another spate of farm closures and herd disposals off Island. The resulting shortfall in supply would make milk importation a necessity. If semen importation **is** allowed, a material defence against liquid milk imports could be removed.

The continued import restrictions via States Regulation of liquid milk on the one hand, and semen on the other, are both ultimately questionable, and liable to future challenge.

Local food retailers (Section 8.4):

The Island's mainstream food retailers are not actively looking to import liquid milk, and those that have responded to the Sub-Panel have expressed a preference to support the local dairy industry as far as possible. However, the food retailers that have responded have stated that they would import milk on a reactive basis, if forced

[125] Submission from JMMB, Appendix 2

to do so by a third party importer, in order to protect market share and offer a competitive choice to customers. Lastly they would have to import if they found the Jersey dairy could not meet their local demand.

The rationale behind the proposal (Section 9):

To improve the Jersey cow in the Island (Section 9.1): Use of imported semen to improve a breed is a very well established technique and cost-benefit analyses are in all likelihood, reliable. There is thus a high degree of certainty that importation of semen would indeed improve the Island Jersey cow, and this argument therefore has merit.

To improve farm efficiency (Section 9.2): Experience has shown (MAFF, 1975[126]; van Arendonk et al., 1991[127]) that higher-producing cows are, indeed, more efficient biologically, when this is measured at the level of the animal. However, in the Jersey context the choice of efficiency measure is conditioned by the existence of milk quotas and the cost of labour and land, so farm efficiency would indeed be increased by having a smaller number of cows producing the same volume of milk. This argument therefore has merit.

The Sub-Panel believes the Jersey Dairy has analysed the situation correctly and that increased herd efficiency is necessary in order for the Dairy to achieve its fundamental aim of processing milk efficiently and marketing it as well as possible. The Dairy has managed to avoid the increasing costs of milk that have been experienced in the UK, but in order to keep the local cost of milk down, increasing herd efficiency is vital.

Furthermore, the Sub-Panel believes that the importation of bovine semen offers the best chance of achieving better herd efficiency, giving a better return to farmers, stabilising or even reducing the price of locally produced milk, and thereby avoiding the importation of liquid milk.

The export trade in pedigree cattle (Section 9.2.1): Worldwide there is a healthy trade in breeding Jersey heifers, but Island-bred animals play no part in it at present and 700 unwanted heifer calves are culled annually. The Sub-Panel agrees

[126] MAFF (1975). *Energy allowances and feeding systems for ruminants. Reference book 433.* HMSO, London.
[127] Van Arendonk, J.A.M., et al. (1991). Genetic aspects of feed intake and efficiency in lactating dairy heifers. *Livestock Production Science, 29,* 263-275.

wholeheartedly with the RJA&HS that in an age of worldwide food shortages it is a shocking waste that Jersey is the only Jersey population known to be doing this. The unwanted heifer calves are more likely to be saleable if they are by an internationally known sire. Costs of rearing one for sale are about £700 and the sale value might be £1,500, a useful margin. Promar[128] estimate "perhaps 2-300 head" would be exported per year. One might deduce an apparent profit of £240,000 (compared with the total paid, for milk, by Jersey Milk Marketing Board in 2008 to producers of £4,708,000[129]). This argument for the importation of bovine semen therefore has merit.

To support the majority of farmers who wish to import semen (Section 9.3): Farmers are indeed stakeholders in this issue, however so are the public of the Island, who have subsidised the dairy industry for many years and who need to be convinced of the necessity for importation. This is a valid reason for the RJA&HS to be in favour of importation; however this in itself is not a reason to lift the ban on importation.

To complete a key part of the industry recovery plan (Section 9.4): Jersey Dairy has explained that their viability depends on efficiency at farm level, and there being an assured supply of adequate volumes of locally produced milk. This argument has merit if it can be shown that no other proven programme of genetic improvement is as likely to succeed.

Are there alternative proven schemes available? (Section 9.5): The Jersey Bull Proving Scheme was one such alternative, but it did not lead to elite bulls being identified. Other possible schemes do exist and the RJA&HS has taken note of them. However, their explanations as to why these are not practicable in the Island context are reasonable and this argument therefore has merit.

The objections to allowing imports of semen (Section 10):

Erosion of the Island's heritage (Section 10.1): It is almost impossible to assess how much of the iconic status of the Island Jersey is attributable to the reproductive isolation of the current breed. Should the ban on semen importation be lifted, it is possible that some breeders may wish to retain local breed isolation by not using

[128] Promar, op. cit. p.19
[129] Jersey Milk Marketing Board Report and Financial Statements, 21st March 2008

imported semen. A modification to the Jersey Herd Book would be required to ensure that such animals are easily identifiable.

Implications for the pedigree of the Jersey Island cow (Section 10.2): It is possible that if the ban on semen was to be lifted, imported Jersey semen could in theory include rogue genes, so this objection to lifting the ban on the importation of semen has a degree of merit. An absolute safeguard to this is not available, but the threat needs to be kept in proportion. The Sub-Panel is happy that overseas herd books are as accurate as the Island's, and is reassured by the robust nature of the safeguards that have been put in place by the RJA&HS.

Overseas Jerseys may not be appropriate for the Island: It will be possible for local breeders to use imported semen specifically focussed on the traits that they wish to improve within their herds. The concern that the use of imported bovine Jersey semen would lead to a "different looking cow" is unfounded. If imported semen were permitted, the range of sires available is broad enough to enable each farmer to choose appropriate semen for his/her own breeding objectives.

The introduction of non-Jersey cattle:

a) Current controls on the breed origin of milk sold to Jersey Dairy mean an incentive to increase milk yields by crossbreeding Jersey cows with (for example) Holsteins or Guernseys is absent, however, a farmer processing his/her own milk would not be inhibited.

b) Male dairy calves have no commercial value and are usually culled at a day old. If dairy cows are inseminated with beef breed semen, the calves have beef (or veal) potential. A proportion of cows in a herd would be available for such insemination (those from which the farmer does not wish to keep daughters; first-time breeders whose productivity is not yet known). Keeping beef cattle is not attractive in Jersey because of high land rents, so more likely scenarios would be the development of housed veal systems or the production of beef cross dairy calves for the limited local beef meat market. These scenarios do not fit with the "brown cows in green fields" concept.

The Sub-Panel carefully considered the dangers inherent in the importation of non-Jersey semen and the likelihood of a significant non-Jersey herd becoming established in the Island (see page 48 of this report). However, on balance the Sub-

Panel was satisfied that the relatively large commercial disadvantages of farming a crossbred herd combined with the very small market size for either beef or even locally produced non-Jersey milk with on-farm processing, were sufficient disincentives to ensure that the establishment of any sizeable non-Jersey herd is very unlikely.

However, in the current climate where there is a growing awareness of issues such as “food miles”, in the future there is likely to be an ever increasing move towards supporting and relying on local produce, including beef.

Disease risks (Section 10.3): Although this concern is understandable, the Sub-Panel considers the risk to be minimal. The international semen trade is heavily regulated and health controls relating to infectious disease are strong. While it would be rash to say disease risks do not exist, they must be kept in proportion.

Increased inbreeding could result from the excessive use of a small number of Artificial Insemination sires (Section 10.4): This has clearly been shown in other cattle breeds, notably the Hereford in the UK. This argument against the importation of bovine semen therefore has merit.

Some Island cows produce high yields (Section 10.5): Any population will show variation around the mean. Selection aims to increase the value of the mean, and the mean productivity has not increased on the Island. The question is whether there are enough cows with high yields to make selection realistic. In the Jersey context, the real value of these cows might be in the information they could provide about management of high-yielding cows. This argument against the importation of bovine semen therefore does not have merit.

Profitability would be increased by better herd management (Section 10.6): The evidence of the States Dairy and Livestock Adviser indicates that farms differ in management skills and style. As mentioned in Dr Bichard’s report, historically half of improvement in dairy performance has come from improved management and half from improved genetics. Although this argument has some merit, the Sub-Panel does not believe it is relevant to the current debate as it is applicable to both those who do and do not wish to import semen. Additionally, noting the importance of effective herd and farm management, including the choice and quantity of feed supplements, in achieving efficiency, genetic improvement is also a vital component.

The Sub-Panel accepts that importation of semen is the most realistic strategy in the Jersey context of relatively small, independent operations.

Non-statutory means of restricting the breed of cows used locally (Section 10.7): It is unclear whether it would be legally possible, under the Jersey Competition Law, for the likely sole importer of semen to refuse to import non-Jersey semen if asked to do so by a farmer. The JCRA's remit would be to investigate whether, based on the facts, such behaviour amounted to an abuse of dominance. The JCRA told the Sub-Panel that would involve assessing whether the importer was effectively an 'essential facility' or whether the behaviour amounted to an unjustified refusal to supply.

12. Recommendations

The Sub-Panel ultimately recommends: **That the import of bovine semen be permitted.**

Additionally, the Sub-Panel also makes the following recommendations:

- **The Economic Development Department should do all it can to ensure that the economic advantages for local farmers in keeping purebred Jersey cattle are maintained in the long-term. This should include considering changes to the Rural Economy Strategy when it is reviewed in 2009, to include conditions to safeguard the purebred Jersey cow.**

- **The Sub-Panel recommends the following actions to the RJA&HS, as the responsible breed society:**

1. **Use of overseas Artificial Insemination sires must be monitored to avoid over-use of specific bulls;**

2. **Facilities must be made available for farmers who do not wish to use imported semen. These would involve:**
   (i) modification of the registration system so "Traditional Island" animals are identifiable in the Herd Book, and
   (ii) provision of advice on matings with a view to maintaining genetic diversity in that segment of the breed;

3. **Stores of frozen semen and embryos must be reviewed so the full spectrum of pre-importation genetic variation is represented, and consideration given to storing representative samples off the Island as well as in Jersey.**

   The Sub-Panel understands progress has already been made in this respect with the USDA-ARS[130] in terms of maintaining a subset of historic semen collection in Colorado. These negotiations should be continued, with particular attention being given to release protocols and rights of access.

[130] United States Department of Agriculture, Agricultural Research Service

13. Appendices

Appendix 1: Abbreviations

Organisations and other bodies are usually shown in full the first time they are referred to in the text. Where they are commonly abbreviated, either to a set of initials or in some other way, these abbreviations are used for subsequent references unless the context requires the full name to be given.

AI	Artificial Insemination
Defra	Department for Environment, Food and Rural Affairs, UK
EU	European Union
JBPS	Jersey Bull Proving Scheme
JCRA	Jersey Competition Regulatory Authority
JMMB	Jersey Milk Marketing Board
RJA&HS	Royal Jersey Agricultural and Horticultural Society
The States	States of Jersey
ToR	Terms of Reference
YBPS	Young Bull Proving Scheme

Appendix 2: Methodology and evidence considered

Public Hearings

The Sub-Panel held the following Public Hearings for its review:

16th June 2008:

Royal Jersey Agricultural and Horticultural Society: Mr S Le Feuvre; Mr R Leith; Mr P Houzé; Mr J Godfrey

Jersey Milk Marketing Board: Mr A Le Gallais and Mr B Foulser

Mrs C Vint

Jersey Competition Regulatory Authority: Mr C Webb and Mr S Farr

Mr D Quénault; Ms S Barette; Mr D Le Sech; Mr T Barette; Mr D Le Gresley

Mr N Blampied

Mr M de la Haye

Mr J. & Mrs S. Le Feuvre

20th June 2008 :

Mr W Bailhache, H.M. Attorney General (private meeting)

Mr D Frigot

Mr V Pallot

Mr R Leith

Mr R Le Boutillier

Ms V Huelin

Senator F Walker, Chief Minister

Public Meeting: The Sub-Panel additionally held a public meeting for this review on the 17th June 2008 at the Town Hall.

Written Submissions

The following written submissions were received and considered during the course of the Sub-Panel's review, and copies are available on the Scrutiny website:

Deputy Ferguson
Mrs M Barnsley
Mr B Bree
Prof. M Bruford
Ms K Le Ruez
Mr P Le Cras
Mr C Blampied
Mr D Quénault ; T Barette ; D Le Cornu ; D Le Gresley ; D Le Sech
Mr N Blampied
D J & G J Le Gresley
Mrs E Wood
Mr M de la Haye
Mrs J M Le Ruez
J Le Feuvre
Mrs S Le Feuvre
Mr R G Stevenson
Mr V S Pallot
Mr R Perchard
G Le Marquand
J Hawkes
J Wallman
Jersey Milk Marketing Board/Jersey Dairy
Deputy Gallichan
Dr S Funk
Mr L Rondel
Mr R Leith
G H Walker
L H Le Ruez
Ms V Huelin
A Perchard
P Houzé
J Le Maistre
Royal Jersey Agricultural & Horticultural Society
Mr D Frigot
R & M Shaw
B Leslie
D Hickey
I Anderson
J Davies
S Luce
Mrs A Mitchell