A draft

Food Security Strategy

for the States of Jersey

December 2012

States of Jersey

Food Security Strategy

December 2012

Contents

1. Food security in the Jersey context

1.1 Food security is a somewhat emotive turn of phrase. It is linked by many people with self-sufficiency. It is political and it is operational. Moreover, it is an issue which has grasped the attention of policy makers at global, European and UK levels.

1.2 Within the United Nation's Food and Agriculture Organisation (the FAO) 'food security' has been used in terms of dealing with very immediate threats to populations in the developing world such as poverty, food shortages and starvation. Food security in this sense refers to the ability to make food immediately available and affordable across a given population. The European Commission Directorate-General for Agriculture and Rural Development use 'food security' in a somewhat different context; that of ensuring that the EU as a whole maintains through the Common Agricultural Policy the potential to produce food[i]. The UK's Food Security Assessment[ii] addresses a series of perceived threats to the UK's food supply, looking again at availability and affordability but also at the ability of the country to produce food.

1.3 Food security in the Jersey context is perhaps different from all of these, although it does share common factors. Jersey's island status and its high population density provide unique challenges to the availability of food and the ability to produce food. And whilst Jersey is relatively wealthy there is a significant part of the population that does not share this wealth, providing challenges to food affordability.

1.4 However, food security is not simply an operational issue. The extent to which people feel that they are food secure has direct bearing on their sense of wellbeing. To borrow a phrase from economists, it increases their overall welfare. This being the case the factors that go together to provide food security also have a social and a political value.

1.5 This draft strategy sets out four objectives for food security on Jersey;

- Securing the availability of food
- Securing the affordability of food
- Securing the ability to produce food
- Securing against supply shocks.

1.6 It is intended that this strategy serve three principal purposes, it should:

i. Identify where food security problems are most likely to arise and set out mitigating actions.

ii. Feed into island-wide planning on Jersey's overall security.

iii. Underpin the developing vision for Jersey's agriculture and for food production on the island.

***Food security is not only about dealing with the routine years and the probable, but it is also about dealing with the years that are not routine and the improbable*.**

2. The roles of the States of Jersey and the private sector

2.1 Food production and trade operate in a mixed private-public environment. On the one hand, land is owned and farmed by the private sector, operating in a market which includes (through Protocol 3) the EU. Produce is sold on the island and exported directly to the UK and France. Private retailers import, distribute and sell foods and other goods. On the other hand, farming and the markets for agricultural and food products are regulated by the States of Jersey, through laws, licensing, taxation and incentives; and by the EU as regards export trade.

2.2 Such regulation can constrain agriculture, for example to ensure that potentially negative impacts of commercial operations are minimised. On the other hand they also allow for an element of governmental support to maintain and develop the agriculture and food industries to provide public goods such as environmental management and to stimulate economic development and increase employment. The regulators, through legislation, may also allow or disallow land to be taken out of agriculture and control certain uses of land within agriculture. Similarly, the operations of processors and retailers and indeed of import/export companies are further regulated by the States, for example through the licensing of operations.

2.3 An examination of food security must therefore take into account not only the actions of the States of Jersey as regulator, but also the actions of the private sector in their response to regulations and in their response to local, regional and global economic and climatic change.

3. Food availability

3.1 Introduction

3.1.1 The availability and affordability of food relate to two distinct parameters. Availability is contingent on the ability to import and distribute food and on the ability to produce food for home consumption. Affordability is contingent on a nutritious, balanced diet being available at a price that the least well off on the island can nevertheless afford.

3.2 Imports

3.2.1 The majority of Jersey's food is imported from or through the UK by the three major retailers[1] operating on the island and by a number of wholesalers supplying the catering trade and smaller shops.

3.2.2 There is currently one car-ferry company, Condor, serving Jersey and providing roll-on roll-off routes to France and to the UK and with the ability to take light freight. Condor Logistics also operate a dedicated roll-on, roll off freight ferry twice per day from Portsmouth and the Channel Islands (i.e. serving Guernsey also) and there is a once per week service between Jersey and St Malo. Heulin-Renouf, based in St Helier, operates a regular lift-on lift-off ferry for bulk materials and containers between the UK, Jersey and Cherbourg. For food imports and chilled containers Ferryspeed provide a twice daily freight service between Portsmouth and Jersey (using the Condor freight ferries) and maintain a 40,000 sq ft warehouse in St Helier. The operations of Jersey's car ferry services have been previously reviewed[iii].

3.2.3 Figures from each of the three major retailers indicate an average of twenty 13m containers of groceries being delivered to Jersey each day. Once on the island most goods are transported directly to retail outlets, with relatively little warehousing space. Only one retailer warehouses food on the island and this is predominantly ambient.

3.2.4 The low levels of warehousing would indicate that for ambient-stored products there is in the region of 3-28 days' supply in any one retailer, with an overall supply of 7-14 days. Short-life fresh products by their very nature are not held for more than a very few days.

3.2.5 There are two independent warehousing operations providing storage of frozen products for the multiple retailers, the catering trade and others, as well as a small number of independent wholesalers serving the independent stores and the catering trade.

3.2.6 The average weekly household expenditure on food and non-alcoholic beverages is £73.70[iv]. Based on the last estimate (2008) there are 38,300 households on the island, indicating a total weekly spend of just over £2.8 million. Table 3(a) details the average household spend on food and non-alcoholic drinks, although it should be noted that the typical 'basket' of shopping does of course vary considerably from household to household.

3.2.7 Looking at expenditure in greater detail, Table 3(a) demonstrates that on average 70% of expenditure on food and non-alcoholic drinks is on products which are already (e.g. milk) or might in theory be sourced from Jersey producers. A provisional estimate is that 10% of the supermarket basket on food and non-alcoholic drinks could be sourced from local Channel

[1] The Co-operative, Waitrose and Sandpiper. Sandpiper operates its own retail stores (Checkers Express) as well as the M&S Jersey and Iceland franchises, and the Cimandis food service operation.

Islands producers based on the current agricultural production. There is potential to increase sales in fresh vegetables and also in protein products, although the latter will be constrained by limits to supply.

Table 3(a). Weekly household expenditure on food (£), and spend on products that might originate from Jersey

	Average (all households)	Single parent (at least one dependent child)	Couple (at least one dependent child)	Person living alone (pensioner)
Total expenditure on food & non-alcoholic drinks	**£73.70**	**£74.40**	**£110.20**	**£37.80**
Of which:				
Bread, rice, cereals	9.10	10.90	14.90	4.50
Pastry products	3.00	3.60	5.10	1.30
Beef, pork, lamb and poultry	7.60	6.50	10.40	2.90
Bacon, ham, sausages	2.50	3.20	3.70	1.20
Processed meat	5.30	5.30	7.70	2.60
Fish	3.90	1.80	4.80	2.50
Milk	3.30	3.40	5.90	2.00
Cheese and curd	2.70	3.10	3.90	1.20
Other milk products	3.10	3.60	5.00	1.80
Eggs	0.90	0.80	1.20	0.60
Butter	0.40	0.20	0.50	0.30
Fresh vegetables	5.80	4.70	7.80	3.40
Preserved, processed or dried vegetables	1.70	1.60	2.50	0.70
Potatoes	1.10	0.90	1.50	0.60
Processed potatoes	1.60	2.50	2.80	0.40
Water	0.60	0.40	0.80	0.20
Estimated* value of potential spend on Jersey produce	**46.53**	**45.23**	**68.57**	**23.20**

3.3 Bread and bakery products

3.3.1 Jersey has a single plant-scale bakery with additional artisan bakers producing specialist products. This one baker produces bread for sale across a number of retailers and so continues with sufficient economies of scale to operate. However, there is a continual threat of imports undercutting home-baked produce. Raw ingredients are imported but it should be noted that these have a greater longevity and are more easily transported than bakery products themselves.

3.4 Specialist foods

3.4.1 A number of foodstuffs are of particular importance to specific sections of the population. For example, parents of very young children may rely on bottled milk and on purchased baby-foods. Similarly, many people are dependent on foods which are gluten-free, or on products labelled as suitable for diabetics. Replacing imported specialist foods with home-produced alternatives would require guidance from a health expert or dietician.

3.5 Home-production

3.5.1 A large proportion of agricultural production is exported as higher-value crops, in particular the Jersey Royal potato. Exports of other crops, glasshouse products in particular, are now relatively minor whilst the export of value-added dairy products is increasing

3.5.2 The total area of outdoor fruit and vegetable production (including potatoes) is 20,637 vergées[v] which gives an area of other fruit and vegetable of 2,567 vergées, a significant proportion of which is consumed on Jersey.

3.5.3 The predominant livestock on Jersey is the Jersey dairy cow, with the majority of dairy production consumed within the island. Since 2010 there has been a small but expanding herd of Aberdeen Angus x Jersey cattle that are being raised for beef rather than dairy production. Both sheep and pig production remain at low levels. Dairy production is dependent in part on imported fertilisers and cattle feedstuffs. At this point in time pig production is also believed to be partially dependant on imported feedstuffs.

3.5.4 A simple summary of 2010 production levels is given below.

Potatoes:	30,478 tonnes exported
Other veg:	1,708 tonnes exported
Dairy:	12,897,000 litres supplied to Jersey Dairy
	Plus production from one farm sold directly through their farm shop
Dairy beef:	593 dairy cows slaughtered for meat
Beef cattle:	157 cattle over 12 months old and 295 under 12 months old
Eggs:	18,376 laying hens, assume 312 eggs/hen[vi]
Pigs:	813 pigs slaughtered for meat
Sheep:	469 sheep slaughtered for meat

3.6 The agricultural export market

3.6.1 The balance between imports and exports is of course somewhat skewed, as is typical across most farming regions of the European Union. The notional 'mixed farm', producing a whole basket of different foodstuffs, is simply not an efficient means of production. Moreover, the nature of the modern food industry and markets is such that some foodstuffs may be both exported from and imported to the same region.

3.6.2 There is an argument that can be made that the export markets maintain the capacity for home-production so long as they are fulfilled in a manner that is sustainable i.e. leaving the land in as good or better condition for growing on a year on year basis. This argument may be taken a step further with the assertion that to maintain the potential to produce food land should be maintained in use so that;

- it can be brought to home-production quickly
- the equipment needed for food production is always on-hand
- the skills and expertise for efficient food production are developed and maintained

In this argument, whether land is maintained to support an export market or for home-consumption does not matter; it is the use of the land and the maintenance of the equipment and broad technical skills base that are important.

3.6.3 There is of course scope to present the counter argument on at least two of these points. Land may well be brought back into production as quickly from laying fallow as from intensive use; and the skills for efficient food production might be sourced from outside the States of Jersey if this was deemed necessary. However, both leaving land uncultivated and allowing the loss of agricultural skills might be seen to leave Jersey exposed.

3.7 Resilience of the agricultural sector

3.7.1 Jersey's dependency on a strong export market for its agricultural produce sets it in competition with, for example, Mediterranean and UK home-grown production. However, the costs of moving freight onto and off the island add significantly to production costs in comparison to farmers elsewhere. There are two distinct solutions to this pressure on the agricultural sector; identifying and exploiting protected and niche- markets; and reducing exposure to input costs and price fluctuations.

3.7.2 The PDO status and trademark of the Jersey Royal potato, the development of the Genuine Jersey brands, and continued marketing push for Jersey-labelled produce all serve to develop and exploit protected and niche-markets. In so doing they maintain the economic viability of agricultural businesses and protect Jersey's ability to produce food.

3.7.3 Reducing exposure to input costs and price fluctuations is a more cautious solution, but represents sound business practice regardless of markets. Farmers might reduce input costs, for example, by producing home-grown cereals for animal feeds and by utilising organic manures (farmyard manure, green waste compost etc) for fertiliser. Reducing exposure to input costs and price fluctuations is generally aligned with good agricultural and environmental practice and further developments in this area may be driven by the market for 'environmentally-assured' foodstuffs.

3.7.4 A third option for reducing the costs of supplying to an export market is of course to focus on the home-market for agricultural produce. Whilst the majority of food consumed on Jersey is sold through one of a small number of retailers, it is through these retailers that volumes of sales will be achieved. This is not to say that direct supply (e.g. box schemes, farm shops) should be ignored, it is simply to say that they are relatively low-volume (albeit with a relatively high value). Two of the major retailers do source goods from local producers. For smaller suppliers this may be within the auspices of the SALSA scheme (Safe and Local Supplier Assurance).

3.7.5 Maintaining a diverse, economically viable and skilled farming industry is clearly in the interests of Jersey's long-term food security and the Rural Economic Strategy 2011 to 2015 is designed to grow the rural economy in line with the States' Strategic Plan. The Rural Economic Strategy identifies the need to develop local markets and address food security through a number of policies:

Policy PR 11.	Production of a food security strategy Support from the Rural Initiative Scheme
Policy PR 12	Identify the processing infrastructure and reduction in usable waste
Policy PR 13	Support the provision of a high quality abattoir
Policy PR 14	Establish and provide the secretariat for a Jersey Food and Farming Partnership
Policy PR18	Provide marketing support for Jersey Produce (through Jersey Product Promotion Limited, including Genuine Jersey)
Policy PE 4	Development of Allotments

Policy PE 5 Investigate the scope for Community Supported Agriculture.

There is more general support to the local industry through support payments such as the Single Area Payment, Quality Milk Payment and the Rural Initiative Scheme, coupled with policies to safeguard the agricultural land bank (E12, 13, 14 and 15) and to preserve infrastructure for production, E16, 17 and 18)

3.8 The role of consumers

3.8.1 The role of consumers as active decision makers should not be ignored. In particular, if consumers wish to maintain a level of food security for their own peace of mind then they may wish to act on this by their support for local agricultural produce. On the one hand it might be argued that if consumers choose not to purchase local products then they cannot rationally claim that they are acting to protect their long-term food security. On the other, it is known that consumers' shopping decisions are driven by many factors; including pricing, habits, disposable income, aspirations and ethics.

3.8.2 Ideally, local producers would compete with imported goods on price as well as quality and local provenance, and so protect the diversity of Jersey grown produce. And ideally, all other things being equal consumers would not hesitate to choose Jersey products over imported alternatives.

3.8.3 However, there is an implicit assumption in the mind of many consumers that the ethical considerations on their food purchases have been made, on their behalf, by the retailers. We would not expect a supermarket to sell food that has been produced using obviously cruel methods or which has exploited people from developing countries or which has caused significant environmental or wildlife damage. Nor would we expect retailers to act in a way which was damaging to important sectors of our own economy. As such, whilst the role of consumers as active decision makers should not be ignored, it remains the role of business and of the State to ensure that food security is maintained.

3.8.4 Following from this, we would not expect retailers to act in a way which was damaging to our food security. It can be argued that there is a moral compact between the States of Jersey (on behalf of the Jersey people) and the retailers it licenses to trade; for the States to remove barriers to trade and to ensure that key services are maintained, and for those retailers to behave in a manner which is directly supportive and acting in the long-term interest of home production of fresh produce, bakery products and, albeit on a smaller scale, of protein products. To this end, supporting and acting in the long-term interest of home-production is an integral part of the corporate social responsibility of the retail sector.

3.9 Jersey's food energy requirements

3.9.1 It is possible to examine the production of food on a calorific basis i.e. asking how close the island is to self-sufficiency by calorific rather than financial values.

3.9.2 'Estimated average requirements' are used to determine energy needs. The estimated average requirement for energy is the point at which 50% of the population will require more, and 50% will require less energy for their normal living. The figure is a multiple of basal metabolic rate and a factor indicating physical activity level. In the UK a factor of 1.4 is most often used to reflect the predominantly sedentary lifestyle of the population and the same factor might usefully be applied to the population of Jersey. Estimated average requirements for energy tend to increase up the age of 15-18 years and to decrease in old age and they are

generally higher for males than females. For adults aged 10-50 years the estimated energy requirements are 2550 kcal and 1940 kcal (10.67 MJ and 8.12 MJ) for males and females respectively[vii].

3.9.3 Assuming adult requirements across the population (i.e. ignoring the lower requirements for younger children and higher requirements for older children), and assuming equal numbers of males and females, then the total daily energy requirements based on a population of 97,857[viii] is 219,688,965 kcal (919, 179 MJ) per day.

3.9.4 The energy value[ix] of current potato, dairy and egg production is shown in Table 3(b). From this it is clear that Jersey is not, with its current cropping, wholly self-sufficient on a food energy basis; with these three products providing just 134/365 of Jersey's energy needs.

Table 3(b) The energy value of Jersey's current agricultural production

Crop	Energy value / year (MJ)	Energy days
Potatoes	84,527,511	92
Milk & milk products	36,693,512	40
Eggs	1,799,113	2
TOTALS	**123,020,136**	**134**

3.9.5 It should be noted that this is based on current cropping and methods of production and that small changes could have significant impacts. For example, if the potato crop were left to mature (i.e. shifting from an early potato towards a main crop potato) then the harvest weight would more than double and the total energy-days produced on the island would cover almost two thirds of a full year.

3.9.6 The production of a *balanced* diet using only home-grown produce may require a review of cropping, of the use of glasshouse crops and of wastage in the food chain. There are no key foodstuffs that the island is not capable of producing, it is simply that the proportions of each crop would need to be addressed. It should not be forgotten that Jersey also has access to a rich marine resource.

3.9.7 The NHS suggests that a balanced diet comprises in approximate proportions (*derived from the 'eatwell plate'*);

- 30% Potatoes, pasta, rice or other starchy carbohydrates
- 30% Vegetables and fruit
- 15% Milk and dairy products
- 15% Meat, fish, beans or other non-dairy protein
- 10% Higher fat / sugary foods

All of these categories of foods either are already, or could be, produced on Jersey.

3.10 Threats to food imports

3.10.1 Threats to imports include (i) trading difficulties of the commercial retailers and wholesalers (ii) logistic difficulties within the UK mainland and in the UK's own imports, for example through severe weather events, fuel blockades and the like and (iii) shipping stoppages or restrictions.

3.10.2 That Jersey plays host to three major importing retailers mitigates against the impacts of trading difficulties within any one of these. That is, should one retailer need to significantly reduce their volumes of trade this would present opportunities for another to exploit this gap in the marketplace and increase their volume of trade within Jersey.

3.10.3 Difficulties arising from constraints on UK logistics are factored into the contingencies of the multiple retailers and potentially impact on the whole of their trading operations.

3.10.4 Shipping stoppages and restrictions on shipping, whilst unlikely, are nevertheless possible. Relatively short storage days require more frequent deliveries than may have been the case in previous decades and this trend is likely to continue. The reliance on a single ferry operator for the majority of the island's passenger and passenger vehicle trade serves (perhaps counter intuitively) to protect a year-round service and the economic viability of the shipping route. Similarly, that all three major retailers choose to use a single freight shipping provider serves to protect this service. However, that there are only two vessel operators presents a challenge and food imports must be given priority with the island's emergency planning.

3.11 Threats to home production

3.11.1 The continued threat of imports undercutting home-baked produce could in the long term lead to the closure of the one remaining commercial scale bakeries. Such a closure would make Jersey entirely dependent on imports for this staple product, rather than being dependent on imports for ingredients only.

3.11.2 Threats to home-production of fresh produce include;

(i) reduced markets (or out-competing) for goods, both at home and in export markets

(ii) over-reliance on single crops and consequent risks of widespread failure (through disease, shifts in the market, etc)

(iii) loss of the skills base and decline of the expertise and equipment needed for a production base.

Threats to *productivity* (cf production) are dealt with in Chapter 5.

3.12 Ways forward

3.12.1 The importance of the major retailers in providing a continuous supply of quality food to Jersey should not be underestimated, and their needs as regards shipping and storage, as well as their own contingency planning, should be factored into the island's wider emergency planning. It would be feasible to request of the major retailers that they increased their stocks of a small number of specialist foodstuffs (to be decided in discussion with the Department of Health) over the winter months when disruptions to the ferry service may occur, and in response to other interruptions to supply that may be forecast. A similar request might feasibly be made of Jersey's principle bakery as regards stocks of ingredients.

3.12.2 There is scope to increase secondary processing of primary produce, not only to support local food being stocked in the major retail outlets, but also to support the export markets. This could include further processing of vegetable products that do not necessarily meet stringent retailer requirements. Processing could provide greater potential for long term storage, reduce waste and contribute to the economy.

3.12.3 There is significant food security value to maintaining local production. Concurrent with this, it can be argued that there is a moral obligation on retailers to source products from Jersey wherever this is possible (i.e. matching quality and price with imports), so as to maintain the island's ability to provide for itself. There is therefore a role for the States, with Jersey Consumer Council, retailer representatives and with local producers, to raise the awareness of the food security value of local production (and of buying home-grown) amongst consumers.

3.12.4 The States of Jersey are significant purchasers of foods; for hospitals, the prison, schools and so on. The State's procurement policies with regard to sourcing from Jersey producers should therefore be examined and the scope to increase support for home-grown through public sector procurement ascertained.

3.13 Policy recommendations

3.13.1 **PR1.** States of Jersey to establish a Food Security Board, within the Emergency Planning function of the Chief Minister's Department, as a forum to bring together retailers, processors, producers, and shippers alongside States' departments (including Health and Environment) to address key issues such as: the a need to maintain minimum stocks of core foods over winter months, food storage and distribution and social/welfare priorities. This Food Security Board should publish annually a set of agreed food security indicators.

3.13.2 **PR2.** Using the infrastructure survey being undertaken as part of the Rural Economic Strategy as a starting point, Economic Development to take action to promote the secondary processing of foods, in particular to maintain a 'skills bank' of food production and a diversity of processes on Jersey.

3.13.3 **PR3.** States of Jersey to form a compact with Jersey's retailers and producers, setting targets for minimum levels of local produce sold and reporting on these on an annual basis, alongside providing ongoing support through Genuine Jersey for promoting home-produce.

3.13.4 **PR4.** Economic Development to undertake a review of public sector food procurement and to recommend on actions that can be taken to improve the supply to Jersey's public sector from local producers. This should consider food procurement in the wider scope of 'investment for the future'.

4. Food affordability

4.1 Introduction

4.1.1 Jersey is of course relatively well off. In terms of GDP per head it is second only to Luxemburg in the EU[x]. However, evidence on the distribution of incomes and levels of expenditure indicates that for a proportion of the population food affordability is an issue.

4.2 Household income and expenditure

4.2.1 Table 4(a) shows the mean weekly household expenditure for different household types[xi]. The proportion spent on food is, on average, 10% of total expenditure or 14% of expenditure after housing, fuel and power are taken into account. For lower income household types the proportion of expenditure on food is higher, at 12.5% of total expenditure for single parents with at least one dependent child.

Table 4(a). Weekly household expenditure (£) by household type

	Single parent at least one dependent child	Person living alone (pensioner)	Person living alone (non pensioner)	Couple at least one dependent child	Couple (not pensioners)	Other	All household types
Housing, fuel and power	157.70	73.30	176.20	351.30	234.80	199.90	205.00
Transport	59.40	32.70	62.70	142.10	112.30	110.30	94.00
Recreation & culture	59.80	41.60	54.90	115.70	106.20	99.80	86.00
Food and non-alcoholic drinks	**74.40**	**37.80**	**33.90**	**110.20**	**74.70**	**89.30**	**73.70**
Miscellaneous goods and services	59.00	35.60	30.60	123.30	70.00	75.20	70.40
Other	184.4	93.6	118.9	272.3	218.5	257.2	195.1
TOTAL	**£594.70**	**£314.60**	**£477.20**	**£1,114.90**	**£816.50**	**£831.70**	**£724.20**

4.2.2 Affordability is clearly related not just to expenditure but to levels of income. Table 4(b) presents data on mean household incomes by housing type and the residual income after expenditure has been taken into account[xii]. As might be expected, those households of single parents with at least one dependent child have the least residual income after expenditure.

Table 4(b). Mean household income (£) by housing type

	Single parent at least one dependent child	Person living alone (pensioner)	Person living alone (non pensioner)	Couple at least one dependent child	Couple (not pensioners)	Other	All household types
Before housing costs	£613	£369	£543	£1183	£1075	£946	£860
Income minus expenditure	£18	£54	£66	£68	£259	£114	£136

4.2.3 Looking behind the average figures for household income, the 2009/10 Jersey Income Distribution Survey Report indicates that 51% of single parents, 46% of pensioners living alone, and 23% of pensioner couples are in households with income below 60% of the

median equivalised household income (see Table 4(c)). In cash terms this is equivalent to a weekly household income of less than £400 before housing costs, or £313 after housing costs are taken into account. This level of income is below the mean weekly expenditure for all housing types except for pensioners living alone, and would be assumed to impact on affordability of food as well as other goods and services.

Table 4(c). Proportion of households with 'relatively low income after housing costs' in Jersey

	Proportion of total households in Jersey	Of which, percentage with household income less than 60% of median	Proportion of total households in Jersey with household income less than 60% of median
Single parent at least one dependent child	6	51	3.1
Person living alone (pensioner)	11	46	5.1
Person living alone (non pensioner)	17	25	4.3
Single parent with all children over 15 years	3	10	0.3
Couple (both pensioners)	11	23	2.5
Couple at least one dependent child	21	15	3.2
Couple with all children over 15 years	6	11	0.7
Couple (one pensioner)	4	12	0.5
Couple (not pensioners)	18	10	1.8
Other	4	14	0.6
	Total: 100	**All types: 22**	**Total: 22.1**

4.2.4 To put this another way, 22% of households might be defined as relatively low-income. This degree of disparity of incomes is similar to that seen in the UK. Compared to mean levels of expenditure for household types, single parents and couples with at least one dependent child would appear to have the greatest difficulties of affordability.

4.3 Food affordability

4.3.1 The data indicates that those households falling into the relatively low income category expend a far greater proportion of their income on foodstuffs than do higher income categories. To some extent this is a truism: food is a *need* in the very real sense of the word. Moreover, figures for the Jersey Retail Prices Index indicate that increases in food prices were more than 10% during 2008 and in the region of 6.3% for the year to June 2011, increases that will inevitably place further pressure on lower income groups.

4.3.2 The Jersey Annual Social Survey (2010) included questions on food affordability. Approximately 5% of respondents reported that they had gone without a cooked main meal every day; 6% indicated that they had gone without eating meat chicken or fish (at least) every second day and 5% reported that their household had gone without either fresh fruit or fresh vegetables over the past twelve months because of a shortage of money.

4.4 Costs relative to the UK

4.4.1 It should be noted that the costs of food on Jersey can be considerably higher than in the UK. For example, comparisons at June 2011[xiii] indicate that prices on Jersey were in the region of 33-34% higher than the UK for fresh fruit and vegetables, 20% higher for poultry and 37% higher for pork, whilst the prices for beef were roughly the same as in the UK. Comparisons with the UK are relevant since the retailers operating on Jersey and the bulk of freight to the

island are from the UK and because of a shared currency. The reasons for these higher prices are set out below.

4.4.2 First of all, competition between the multiple retailers in the UK is believed to be amongst the fiercest in Europe, driving prices downwards. The smaller population and fewer retailers on Jersey precludes such outright competition.

4.4.3 Secondly, two of the three major retailers operating on Jersey are amongst the 'high end' retailers within the UK, typically attracting customers with higher disposable incomes. Lower income customers within the UK would more normally opt to use different retailers with lower price offers and perhaps less focus on food assurance and food quality.

4.4.4 Importing to the island (ferry charges, vehicle and driver time,) adds further to the costs of provision. Improved linkage of retailers with Guernsey operations may serve to reduce these costs through economies of scale.

4.4.5 Staff costs, property values and rental for Jersey retailers are believed to be higher than on the mainland UK and there is the additional imposition of Goods and Services Tax (GST) at 5% across all foods in Jersey, whereas in the UK food and drink for human consumption is in general zero-rated for VAT purposes, with luxury items (confectionary, alcoholic drinks, snack food and so on) being standard rated at 20%.

4.5 Global impacts on food prices

4.5.1 Events leading up to and during 2008 led to marked increases in food prices across the globe. Consecutive droughts in major grain producing countries had led to a decline in world stocks; supply had lagged behind demand for a number of agricultural products for some years and agricultural input costs (fuel and fertiliser) had increased faster than agricultural prices. Further to this, the dollar decline and trade restrictions limited the supply response of major exporters and bio-energy policies increased demand[xiv].

4.5.2 These global impacts are beyond the control of the States of Jersey but have a direct impact on food prices on the island. The significant (over 10%) retail price hikes seen in 2008 have been followed by further, lower price rises and overall food prices have increased by 38% from June 2005 to June 2011[xv].

4.6 Local actions for food affordability

4.6.1 One way in which foods can be made more affordable is through garden-produce, i.e. 'growing your own'. The Jersey Allotments and Leisure Gardening Association (JALGA) was set up following the publication of the "Allotment Strategy for Jersey" report, prepared by the Working Party under Economic Development Department. The JALGA is able to offer help and advice to landowners and groups wanting to develop their own sites, with the intention that everyone who wants to grow their own produce has the opportunity to do so.

4.6.2 Other initiatives, involving primary schools, such as the Jersey Farmers Union carrot growing competition and the Genuine Jersey Royal potato growing competition within primary schools introduce children to the notion of growing their own produce which hopefully they will retain throughout their lives.

4.6.3 The idea of community farms and community supported agriculture (CSA), promoted in many places as a means to get people closer to food production, would not only serve to increase

(albeit marginally) food production, but coupled with an increased allotment movement it would help to engage the more urban section of the Jersey population and to encourage self-sufficiency on a wider scale. As with the allotment movement, CSA has the potential to make fresh produce more affordable to participants

4.7 Threats to food affordability

4.7.1 Maintaining a diverse mix of retailers not only ensures an element of price competition but also allows for different 'value propositions' to be offered to consumers. Consolidation of the retail sector and the loss of retailers would have potentially detrimental impact. This must be balanced against the economies of scale that larger retailers offer.

4.7.2 Factors outside the island's control, such as input costs for global agriculture, have recently had significant effect on food prices and this coupled with rises in unemployment and pressure on incomes (in particular for lower paid jobs) will continue to make affordability an issue.

4.7.3 The levying of the GST in 2008 increased the price of all foodstuffs by 3%, rising to 5% in 2011.

4.8 Ways forward

4.8.1 For children from **low income households**, the impacts of low affordability can be offset to a great extent through school meal provision where this takes place. Similarly, for lower income pensioners there is scope to provide direct support through free or subsidised meals.

4.8.2 **Ensuring competition** in the provision of food should remain a key consideration in the licensing of traders. This should include an assessment of affordability across the whole population. Local suppliers should be encouraged and supported in identifying and exploring the market to provide further price competition where this is possible.

4.8.3 In consultation with the Health Department and Social Services the Treasury should consider removal of the **GST** on a core basket of healthy foodstuffs (e.g. fresh fruit and vegetables). This would reduce the costs of food to those who can least afford it, as well as promoting the more healthy and nutritious foods. Whilst many factors influencing price are outside the States' control, manipulation of the GST is one of the few ways in which Jersey can directly address affordability for the less well off.

4.8.4 Provision to increase the scale of allotments held by Jersey residents should be considered jointly by the Environment and Health Departments and the Environment Department should fully investigate and develop a business plan for community farms or community supported agriculture.

4.9 Policy recommendations

4.9.1 **PR5.** States of Jersey to undertake and publish an annual survey of relatively low-income households to ascertain the impacts of food affordability on diet and health.

4.9.2 **PR6.** Treasury to review and publish the data on the revenue generated for the States of Jersey by the levying of GST on foodstuffs, and to undertake a review the costs to the States of Jersey (in lost revenue) of removing GST on certain foodstuffs i.e. fresh fruit and vegetables, fresh meat and fresh fish. Consideration should be given to removal of GST on

local produce (subject to legal constraints, in particular Protocol 3 to the Treaty of Accession) to underpin PR3 and PR4.

4.9.3 **PR7.** Environment Department to develop plans for widening the availability of allotments and to investigate and develop a business plan for community farms or community supported agriculture.

5. Maintaining the ability to produce food

5.1 Current productivity

5.1.1 Approximately 56% of Jersey's land, 36,406 vergées, is given over to agricultural production. There are 558 registered holdings of which over half are very small (1-10 vergées) and less than 30 holdings cover more than 20% of agricultural land[xvi]. Of these registered holdings, 95 claim[2] the SAP and QMP and can be viewed as truly 'commercial', accounting for 26,875 vergées (73.8%) of the registered agricultural land[xvii].

5.1.2 In addition to agricultural land there are over 10,500 vergées of natural vegetation and an approximate 2,500 vergées of parks, gardens and other urban green land.

5.1.3 Jersey, as with much of central / southern Europe, is in the advantageous position of being able to harvest two crops per year on much of its land. As such the areas of land given over to crops on an annual basis totals to more than the total agricultural area - as shown in Table 5(a).

Table 5(a). Cropping areas on Jersey's agricultural land

Crop	Period	Area (vg)
Potatoes	Jan - July	18,070
Other vegetables	Mar - Aug	2,567
Outdoor flowers	Jan-Dec	913
Grass (at 1st October)	*01 October*	16,918
Forage maize	May - Sep	2,173
Cereals (winter wheat, spring barley)	Nov - Sep	1,703
Green manure / cover crops	May onwards	5,045
Totals		**47,389**

5.1.4 Grass and forage maize are grown for the dairy sector, and grassland is also used for the equine sector. Cereals are produced for animal fodder and straw rather than human consumption. Green manure and cover crops are planted to improve soil nutrients and structure (reducing leaching and run-off and so providing additional environmental benefits) and to provide winter grazing for the out-wintered fraction of the dairy herd. Forage maize, spring barley, green manure/cover crop and a proportion of the grassland are planted as second crops following the potato harvest.

5.1.5 Jersey's field structure is also rather distinctive. In comparison to the UK the fields are smaller, and agricultural holdings are less coherent or 'ring fenced'. Partly because of the way that land is owned and rented, single farms can comprise of a series of 'pockets' of land rather than a continuous whole. Moreover, because Jersey does not produce a large area of cereal crops, and because the vegetable crops produced are labour rather than machinery intensive, there has not been the pressure on farmers to remove field boundaries. Although boundary removal has happened on occasions in the past the new Island Plan ensures that for further removal planning permission will be necessary.

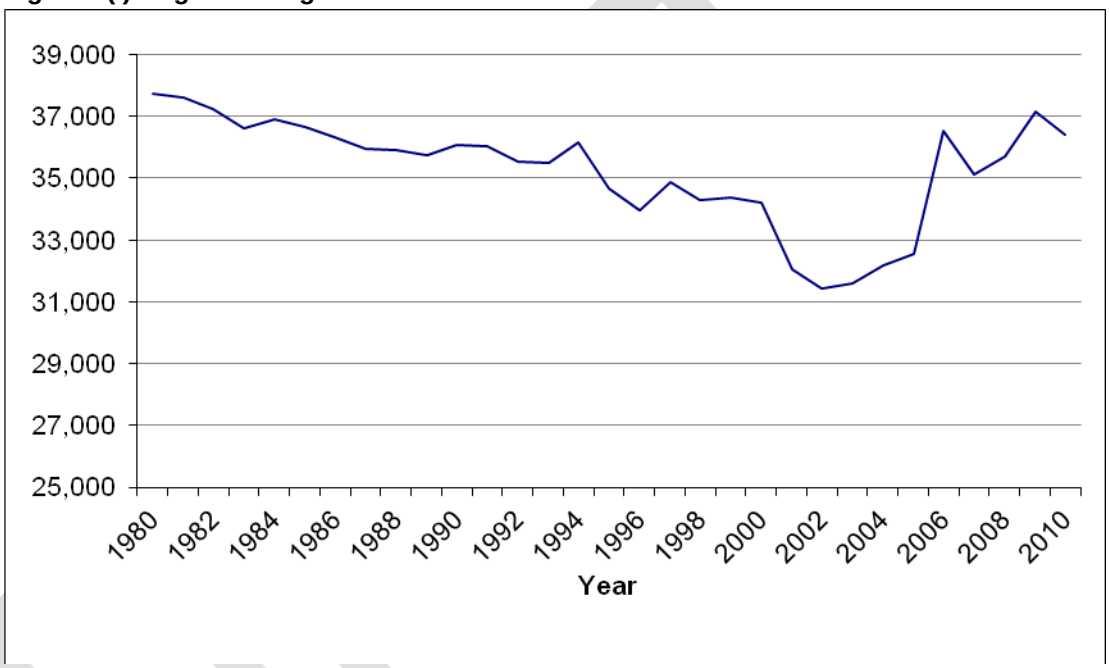
5.2 Limits and threats to productivity

[2] There is a small number of commercial horticulturalists who do not claim the SAP, typically with very small areas of land

5.2.1 The ability to produce food is contingent on a number of factors, including land availability, soil type and quality, climate and weather, nutrient inputs, seed stock, and the ability to counter plant and animal disease. Some of these factors may be subject to external change whist others are in the control of Jersey's farm businesses. In particular, soil quality, water use and nutrient inputs can all be managed to 'optimum levels'.

5.2.2 **Land availability:** Land available and used for agricultural purposes has remained relatively static for the period 1980 - 2010. Laws are in place controlling the occupation and use of agricultural land and to ensure a viable land bank is retained[xviii], and to control the domestication of agricultural land[xix]. Loss of land to urban expansion has therefore been limited. However, it is worth noting that Jersey has a relatively high population density, at 800 people per km^2, compared to 390 people per km^2 in England. The pressure for land development is therefore considerable.

Figure 5(i) Registered agricultural land 1980 - 2010



5.2.3 Under The Agricultural Land (Control of Sales and Leases) (Jersey) Law 1974 'agricultural land' means land, including land under glass, used or capable of being used for any purpose of agriculture or horticulture, but does not include any dwelling house or outbuilding.

5.2.4 The above graph represents the area recorded under the Agricultural Statistics Return under the Agricultural Returns (Jersey) Law, 1947 and appears to show a steady decline in land owned and rented from 1980 until 2001. The more rapid decline from 2001 coincided with a major fall in the potato area (from 19,076 vergées in 2000 to 16,903 vergées in 2001) following a very poor season (2000) on top of a number of poor years.

5.2.5 In order to establish a base line to measure the impact of the new Rural Economy Strategy in 2005 a fuller understanding of land use was required. Therefore all land owners or occupiers, identified through the Parish Rates List, were sent an agricultural return form. This picked up a number of people who had not been completing an agricultural return and as a result the 2006 total area increased by 3,970 vergées compared with the 2005 area.

5.2.6 **Infrastructure:** Current productivity requires infrastructure including glasshouses, agricultural sheds, warehousing and packing lines. The Agricultural Buildings Capacity Study provides

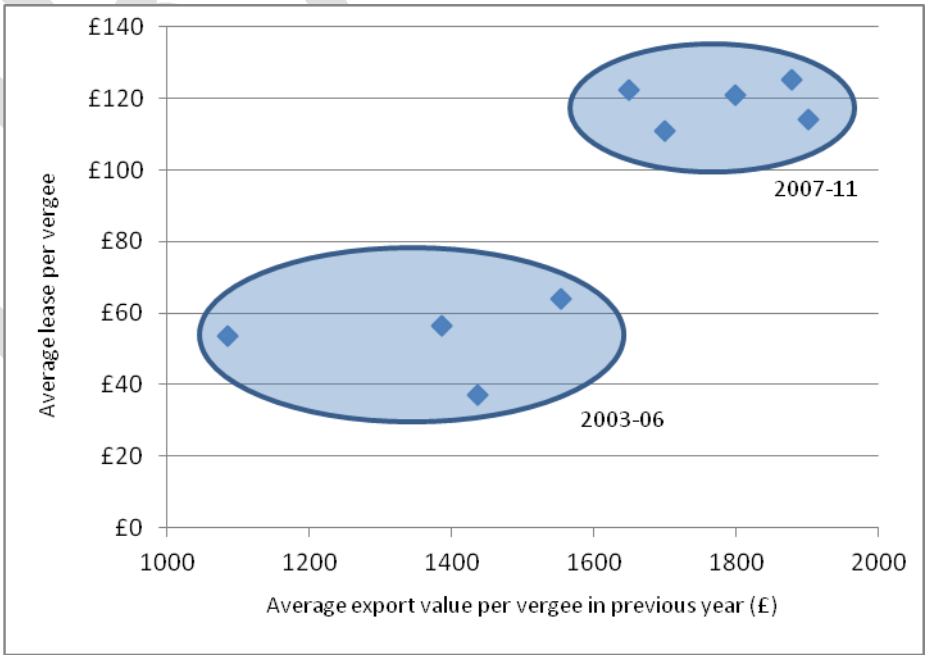
information on agricultural buildings and their use. However, there is no reliable estimate of current infrastructure needs and whether these are being met, nor is there a forecast of future infrastructure needs.

5.2.7 **Impacts of land competition:** The pressures on land prices that result from a strong market for a single commodity can in theory have detrimental impacts on the profitability of other sectors. Farming in Jersey, as elsewhere, is restricted by land availability. Approximately two thirds of agricultural land is rented, and the rental price has direct bearing on profitability. Between 2006 and 2007 average rental prices more than doubled, from £56.40 to £121.10 per vergée (albeit from a limited number of transactions). It has been suggested that this is the result of the strength of the potato market and that it is impacting on the rental price for the dairy sector, with detrimental impacts on their long term profitability.

5.2.8 However, looking at longer term data for the amount of land planted with Jersey Royal potatoes there is no clear relationship between rental price and area planted. Nor is there a clear relationship between the harvest value in any one year and rental prices in the following year. Except for the increase from 2006/07 rental prices would seem to be remarkably static and do not appear to be affected by apparent profitability.

5.2.9 The increase from 2006/07 may be explained by 'aggressive acquisition' by growers. This is feasible, given that for potatoes in particular there are a limited number of premium growing sites available. However, the corollary to this would be that the increase in rental prices should not necessarily be seen outside of the potato sector. That is, whilst prices may have increased for other sectors too, this is not necessarily as a direct result of competition for the prime potato growing sites. The area of Jersey Royals planted increased by just over 2000 vg between 2008 and 2009, and by a further 1000 vg between 2009 and 2010, with no apparent impact on rental prices.

Figure 5(ii) Average lease price and export value for the previous year's harvest.



5.2.10 These price rises external to the potato sector may be the result of a number of factors, including for example i) a level of 'spillage' between sectors, with the higher price for good

potato land being used (quite unreasonably) as leverage to increase the prices of other land; ii) increased competition from other sectors, such as recreational horse keeping; and iii) adjustment, following a prolonged period of relatively low rental prices. There remains very little evidence to suggest that the pressure on land prices outside of the potato sector is a result of the strong export market for potatoes *per se*.

5.2.11 It might also be argued that the increased demand for land on which to plant potatoes would hinder the opportunities for other agricultural sectors to expand. Whilst this is only likely to be the case in sectors which do not fit with the use of land for the potato crop (i.e. sectors requiring land through the months of January to July) it is nevertheless a key consideration for the future structure of Jersey's agriculture as a whole.

5.2.12 **Horse grazing:** As well as loss of land to urban expansion, land may be taken out of agricultural *production*[3] to be used for horse grazing. There are an estimated 1,100 horses on Jersey. Grazing requirements do vary according to the numbers of horses kept together, but taking an average requirement of 0.6 ha per horse (ref: Nix 2008) this would provide an estimated land use of 3,670 vergées, or 10% of the island's agricultural land. In 2011 there were 349 horses at livery recorded within the SAP returns, with 508 vg of land recorded as being used for equine purposes. These figures have remained relatively static over the past five years. However, this does not necessarily take into account the proportion of grassland that is used for hay and fodder production, and for grazing as a 'second crop' after potatoes. That is, although land may be used for equine purposes it is not necessarily taken out of food production completely; and the equine sector may provide an income that supports arable businesses.

5.2.13 Land used for horse grazing is not taken out of the agricultural land-bank, and could of course be returned to food production very quickly should the need arise. However, the question might be asked as to whether the horse sector is damaging the island's capability to produce food by reducing the viability of some agricultural sectors and by a reduction in the agricultural skills base, i.e. replacing farmers and the expertise to cultivate crops with landowners holding some small knowledge of pasture management? Counter to this it can be argued that whilst the widespread use of land for high-value recreational purposes such as horses may put pressure on land prices and has the potential to damage other crop production, it is in itself an essential part of the island's agricultural diversity and skills base.

5.2.14 The relevant question highlighted by the land given over to keeping horses is perhaps this; what balance of crops, livestock and other activities will provide for a *sustainable, diverse and adaptable agricultural sector* capable of providing more food for home-consumption should the need arise?

5.2.15 **Soil quality:** Poor quality soils in Jersey are mostly confined to sloping poorly drained fields in stream valleys containing natural grassland which are grazed by dairy young stock in the late spring to early autumn months, and comprise an estimated 5% of land area. In addition, light sandy soils and cotils would only grow first crop potatoes followed by a cover crop as a second commercial crop would be unviable in many years without irrigation. Soil Management Plans and nutrient budgeting will be conditionality to receiving States support payments as from 2013. Soil Management Plans are intended to identify those areas of farmland on which erosion and other soil problems are apparent and to state the intended mitigating actions that will be taken to improve soil quality in these areas.

[3] Whilst livery and the keeping of horses on a commercial basis is accepted as a legitimate agricultural activity, it is noted here only on the basis that it is not an activity aimed towards food production

5.2.16 **Fertiliser use:** Fertiliser use is from four sources; organic fertilisers from the dairy herd, processed sewage sludge, green waste compost from La Collette and imported inorganic fertilisers. Estimates of the volumes of fertiliser used in 2010 are provided in Table 5(b). Around two-thirds of the available nitrogen applied to land was in the form of purchased synthetic fertilisers, with the remaining third made up of slurry from the dairy herd, green agri-compost and treated human sewage sludge.

Table 5(b). Estimated fertiliser use, Jersey, 2010

Fertiliser	Weight or volume	Approximate available nitrogen
Imported synthetic fertiliser*	4,115 tonnes	840.135 kg
Slurry from the dairy herd**	30,600 m^3	107,100 kg
Green agri-compost***	16,190 m^3	80,950 kg
Treated human sewage sludge***	6,112 m^3	281,152 kg
TOTAL		**1,309,337 kg**

** figures from Department of Environment; ** based on a dairy herd of 5204 cattle with 2,970 cows and heifers in milk, housed for a six month winter period; *** figures from TTS for 2010*

5.2.17 The application of fertilisers on land such as that seen on Jersey will increase yields by as much as 60% (depending of course on the fertility of the land beforehand). However, fertiliser applied in excess of requirements is not taken up by crops and can cause environmental damage and costs - such as that for removing N from drinking water. There is a balance to be struck, therefore, between maximising yields and minimising environmental impact.

5.2.18 The intensive nature of potato production and the absence of rotation can lead to very high levels of N being applied to the same land on an annual basis and fields growing potatoes and the small area of intensively grazed land around dairy units will frequently build up high levels of inherent N. This should be taken into account in determining the amount of fertiliser applied to the potato crop and to the second crops that are planted following potatoes and it is good practice that farmers calculate nutrient budgets for each crop and field situation to reduce N leaching into ground water and to reduce production costs.

5.2.19 Jersey data on the relationship between surface water and groundwater nitrate levels demonstrates the clear linkage between excessive fertiliser application and the consequences for water quality. In effect this fertiliser is paid for twice; once by the farmer so that it can be applied and once by the States of Jersey so that it can be removed. Sampling from boreholes across the island indicates that incidences of excess fertiliser application are still too common.

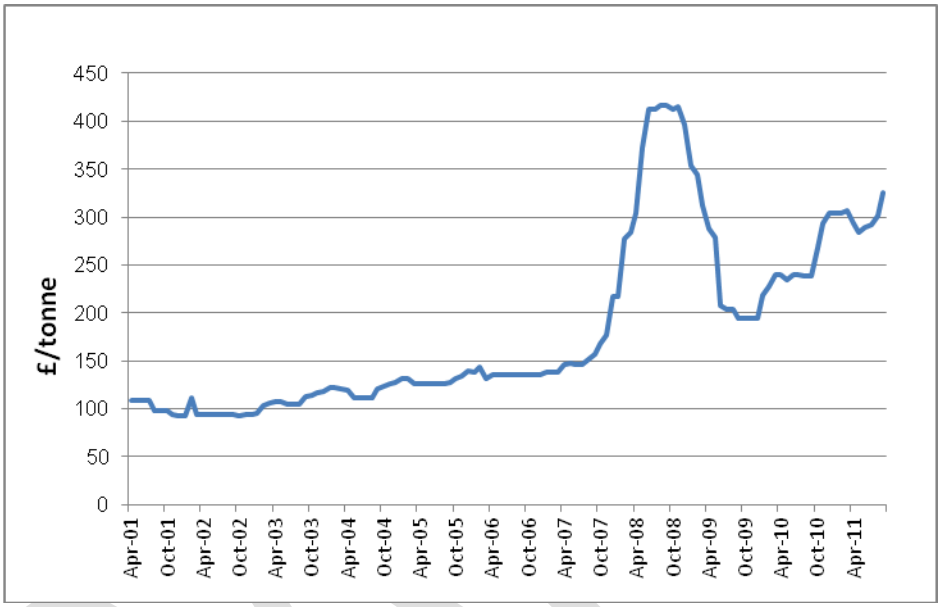
5.2.20 In Western Europe and North America the use of inorganic (i.e. manufactured) fertilisers has decreased over the past decade; a result of increased agricultural efficiency and better regulations rather than decreased production. Such regulations, which have been imposed across western European governments, are aimed at reducing the negative environmental impacts that excessive fertiliser applications can cause.

5.2.21 However, global fertiliser use has increased, particularly in West, East and central Asia. Figures from 2009 indicate that developing countries account for the predominant demand for inorganic fertilisers, with the EU27 accounting for approximately 11% of global ammonia consumption, 7% of potash and 3% of phosphate consumption.

5.2.22 Nitrogen fertilisers (ammonium, ammonium nitrate, urea etc) are manufactured for the most part from natural gas using the Haber-Bosch process. There are other means of manufacturing fertiliser (e.g. hydrogen may be obtained by electrolysis) and so even in the very long term there is scope to maintain supplies beyond 'peak gas'. However, in the short

term the availability and price of natural gas has a direct impact on fertiliser manufacturing costs; the location of gas fields presents a political risk to production (gas is piped from Russia); and the demand for fertilisers is subject to short term peaks following the growth of the economies of major users in the developing world. For these and other reasons fertiliser prices can show marked volatility in the commodities markets and prices through 2008 rose to roughly three times those seen throughout 2007 before falling again in the early part of 2009.

Figure 5(ii). Fertiliser prices 2001-2011. Minimum price for bulk (20-25 tonne) purchases delivered UK mainland 20:10:10 blended fertiliser.



Source: DairyCo, 2011

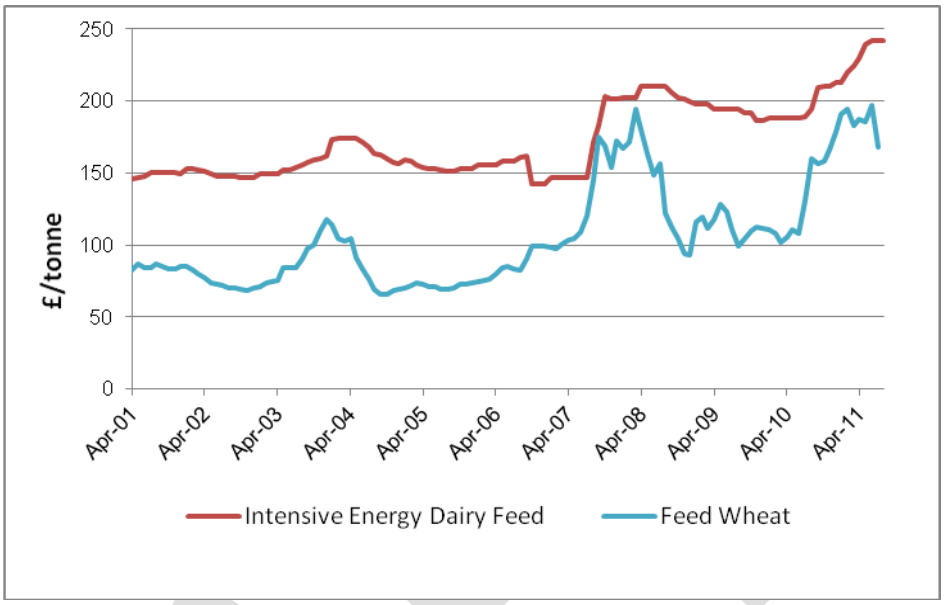
5.2.23 From a farm-economics perspective, fertilisers typically comprise up to 12% of variable costs[xx] for early potato production and in the region of 90% of the forage variable costs in dairy production. Jersey farmers pay an additional cost for fertilisers (of approximately £80 / tonne) through freight charges. For these reasons, and because of the volatility that can be seen in fertiliser prices, there is sound economic argument for dairy farmers in particular to optimise their fertiliser use and avoid unnecessary and potentially damaging over-use. However, for potato growers there is less financial incentive, since the benefits of additional yield will normally outweigh the price paid for fertilisers, and there is perhaps a greater need here for intervention to help producers optimise fertiliser use.

5.2.24 **Animal feed:** Jersey farmers typically import in the region of 5500 - 6000 tonnes of livestock feeds (mostly cattle feed for the dairy industry) per year. The Jersey herd is, as a whole, all-year-round calving. Whilst this means that forage utilisation is less efficient than for spring-calving herds, it provides for an even milk supply to the dairy. Furthermore, the fragmented nature of the fields farmed by individual holdings generally means there is insufficient area held around dairy units to graze cows on an extended forage system.

5.2.25 The widespread use of short-term tenancies and the high rental values paid by potato producers results in dairy producers relying largely on forage produced after the first crop potato harvest. In addition to imported concentrate feeds, cereal crops are grown for use as cattle feed and for their straw and a large area of forage is made into grass and maize silage for winter feed. Cattle are housed from around mid-October through to early March. Housing periods would be shorter (and so dairy farming would have the potential to be more efficient)

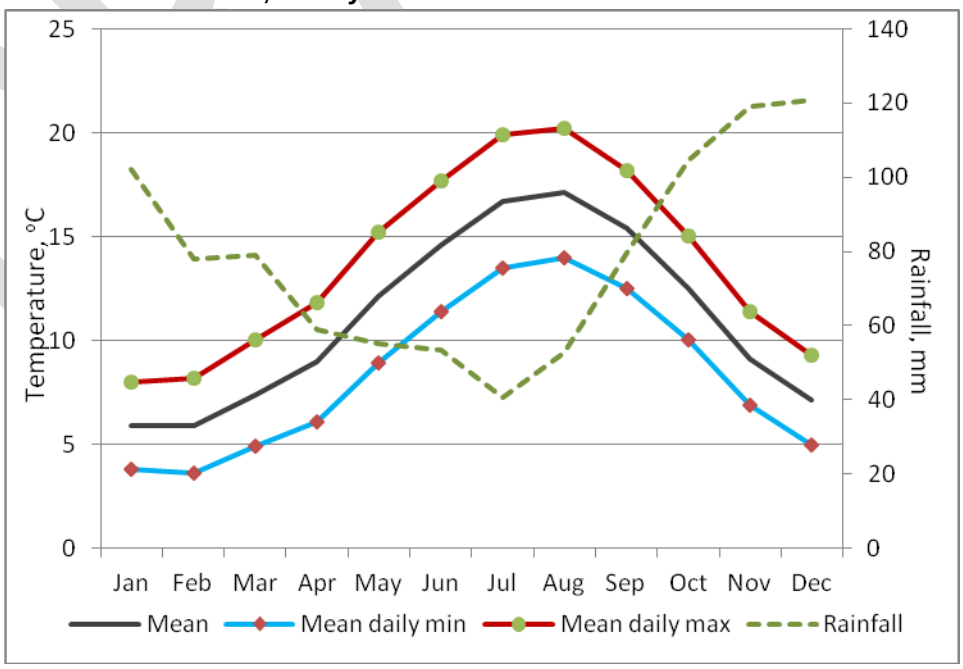
if land was held in contiguous blocks, allowing movement between grazing and milking and allowing cows extended access to grazing.

Figure 5(iii) Cattle feed prices 2001-11. Minimum price for bulk purchases delivered UK mainland.



5.2.26 **Climate and weather:** Jersey has a maritime climate with relatively warm but wet winters and drier, warmer summers. Figure 5(iv) shows the thirty year averages (1971-2000) for mean maximum and minimum monthly temperatures and rainfall.

Figure 5 (iv) Thirty year average figures for monthly temperature and rainfall at Howard Davis Farm, Jersey



5.2.27 When considering crop production then temperature, sunshine and rainfall must all be taken into account as well as the stage in crop production. Current cropping takes advantage of the

relative warmth and high levels of sunshine early in the year to produce high value, new season potatoes; winter rainfall also allows for strong early season grass growth for the dairy herd and the hotter summers with low rainfall suit the production of forage maize, also for the dairy herd.

5.2.28 In 2010 there were 61 licences[4] for surface water abstraction and 71 licences for groundwater abstraction for agricultural and horticultural purposes, and a further 14 boreholes registered but not licensed for water abstraction. The maximum allowable abstraction under these licences and registrations is in the region of 1.45Mm^3 for agricultural and 0.21Mm^3 for horticultural purposes. Whilst in some years abstraction is less necessary than others, particularly low levels of rainfall in the spring growing period can have a significant impact on crop production (reducing potato yields by as much as 40%[xxi]), and prolonged periods of dryness in the summer can also impact on the productivity of vegetable crops.

5.2.29 Of the licenses used for agricultural and horticultural purposes in 2010, 123 were used for field irrigation and 7 for irrigation of glasshouses and poly-tunnels, primarily (although not exclusively) for the potato crop.

5.2.30 Most of Jersey's precipitation is as rainfall during the winter months, and it is during these months that the aquifers fill. A large proportion of rainfall is 'lost' through evapotranspiration, the remainder can be partitioned into streamflow and infiltration. Infiltration, moves down to the water table and this water table flows, by gravity, to emerge as spring-water or to discharge into the sea. It is this infiltrated water that is pumped as groundwater from the boreholes used for both agricultural and domestic purposes; and it is this system that serves as a natural reservoir. In successive dry years groundwater becomes depleted. Following dry winters the conservation and careful use of water through summer months is therefore critical.

5.2.31 Jersey has six impounding reservoirs which, when full, provide approximately 2.6 Mm^3 of water or 110 days of supply to the island (excluding direct supply from boreholes and private stream water abstraction)[xxii]. The pollution of water, e.g. through nitrate leaching and by other means, affects both groundwater and streamflow, both of which will enter these reservoirs. There is a therefore a strong possibility that excessive use of fertilisers will lead to the pollution of the island's drinking waters, resulting in increased costs (e.g. to remove nitrates from the drinking water) and disruption of these supplies.

5.3 Climate change

5.3.1 Climate change predictions for the Channel Islands have been modelled over series of time periods and for a range of global CO_2 emissions[xxiii]. Looking over the next thirty years the predictions made at all levels of emissions are that mean winter temperatures will be 1.2°C higher and that mean summer temperatures will be 1.4 - 1.5°C higher. Annual mean precipitation is predicted to remain unchanged, but with a marked increases of 6-7% in mean winter rainfall and decreases of 6-9% in mean summer rainfall.

5.3.2 The major impacts of climate change on crop production are as follows;

- There will be a longer growing season
- There will be a higher risk of summer droughts
- Increased storminess may lead to crop damage and soil erosion

[4] Licences are required wherever abstraction exceeds 15m^3 in any one 24hr period, whilst borehole use at lower volumes requires only that the borehole is registered.

- Crop establishment may be hindered by wetter winters
- Crop pests and diseases may increase with warmer, wetter winters

5.3.3 For livestock farming there are similar impacts;

- A longer growing season and, if water and nitrogen are available, more grass.
- Lower grass productivity during dry summers.
- Pasture use made more difficult by wet ground.
- Soil structure damage through more extreme wet / dry periods

5.3.4 The effects of droughts, storm damage and erosion can generally be managed through good farming practice. Similarly, the impacts of a changing climate on grass production may require a shift in how grass is conserved and when cattle are housed, but it should not lead to an overall reduction in productivity.

5.3.5 The shifting patterns of rainfall towards winter and away from summer precipitation may require a greater degree of management to ensure that agricultural irrigation can continue but the mean annual rainfall is not expected to decrease.

5.4 Optimising Jersey's productivity

5.4.1 There is scope to consider whether agricultural productivity might be improved through the use of different crops and technologies or by identifying efficiencies in the food chain.

5.4.2 Jersey in not suited to growing high quality protein crops such as soya and as such much of the feed used in livestock systems is imported. However, Jersey's dairy does produce, as a co-product, large volumes of skim-milk. Skim milk (containing protein) is used as a pig feed in conjunction with ground barley as a complete diet for finishing pigs. If there is a surplus volume of skim milk from Jersey Dairy this could be used by a pig breeding/finishing unit in conjunction with barley after potatoes as a reasonable cheap food source.

5.4.3 Beef production is being improved on Jersey by the import of pedigree Aberdeen Angus genetics. In 2010 there were 295 such Angus X Jersey beef cattle less than twelve months old recorded in the agricultural statistics, which might indicate the annual production levels in future years. Given the improved carcase weights and carcase quality of the Angus X jersey over the pure bred Jersey cow this will likely double the quantity of meat produced from Jersey.

5.4.4 However, most retailers deal overall with much larger volumes of supply for their regular meat counters, and contracts are often held with abattoirs and processors rather than directly with individual farmers. Jersey's home-bred beef would beneficially distinguish itself from this volume supply. If a central processing and packaging and branding facility were available on the island then it would be quite feasible to produce branded, quality assured beef products that could be sold into the multiples alongside their own branded products.

5.5 Ways forward

5.5.1 Maintaining the **agricultural land bank** is embodied in planning regulations, with a presumption against development. The review of '74 Land Law will be complete by 2012 and any actions arising from this should be given priority.

5.5.2 Land use on Jersey is dynamic and highly responsive to market conditions. However, it is essential to **maintain crop diversity and rotation** to maintain skills and capacity for production. To this end the Environment Department must maintain a watching brief and inform the relevant Minister if a key sector becomes unviable due to land competition.

5.5.3 Protecting the **structure and quality of the soil** is a necessary element of maintaining the ability to produce food. As part of cross-compliance farmers are undertaking soil protection reviews, mapping the areas of land for which soil damage is more likely and putting in place mitigating actions.

5.5.4 **Water capture, storage, and use** should be reviewed across Jersey's agricultural holdings but also more widely; for example, in making sure that new buildings in any sector make use of water capture techniques. The potential for the agricultural sector to manage a reduction in water use should be assessed. A carrot-and-stick approach to reducing water use in agriculture may be necessary and options for achieving this should be progressed in collaboration with the major growers.

5.5.5 Improving the technical efficiency of farming is a key element of the Rural Economic Strategy. Further to this, many of the assurance schemes required by the major retailers demand levels of environmental care and operational record keeping that in them-selves will drive agricultural efficiency. Notwithstanding, there is a continued need to **promote any efficiencies that reduce the reliance on imported feeds or fertilisers**. This should include the wider use of treated sewage sludge produced by TTS.

5.5.6 Agricultural and environmental **research supported by Jersey should be appraised for its contribution to the island's food security** alongside its impact on the sustainability of farming, economic benefits and so on. The appraisal of contribution to food security should include assessments of the impact of the research on food availability, food affordability, the island's ability to produce food and the island's capacity to cope with supply shocks.

5.5.7 **Jersey's Emergency Planning for food** should include reference of how agriculture might be supported in the event of a severe restriction on shipping to the island. In particular, imports of seed and fertiliser for arable farming and of cattle feed for dairy farming will be necessary to maintain productivity at current levels.

5.6 Policy recommendations

5.6.1 **PR8.** Environment Department to review water capture, storage and use in agriculture and assess the potential for agriculture to manage a reduction in water use.

5.6.2 **PR9.** TTS and Environment Department, with producer groups, to develop and implement a strategy to maximise the use of treated sewage sludge as an agricultural fertiliser.

5.6.3 **PR10.** Environment Department to include within its research strategy (and any development of that strategy) a requirement that all States of Jersey funded agricultural research should be appraised for its contribution to the island's food security.

5.6.4 **PR11.** Emergency Planning to consider and make proposals as to how agricultural production might be supported in the event of severe restrictions on shipping to the island.

6. Food security in an international context

6.1 Introduction

6.1.1 At a global level the issues of food security are in many cases more immediate than those faced on Jersey, and require a "sea-change" in our thinking about the equitable distribution of resources.

6.1.2 The FAO define food security as "when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life". Whilst food supply can be disrupted for individual countries, particularly in the developing world, by natural or man-made disasters (droughts, floods, overgrazing, wars and so on) there is nevertheless sufficient food produced globally to feed the current global population. The sad fact remains, however, that the distribution of foods across the global population remains uneven.

6.2 Common themes

6.2.1 It is estimated that the world population will reach nine billion people by 2050 and a number of studies have examined whether and how such a population could be fed. A number of key themes are apparent;

6.2.2 Consumption in the west is often excessively high and could be reduced without impacting on health. Changes in diet e.g. away from animal and towards vegetable products would increase global food availability. Popularised as 'One Planet Living[1]' the reduced and changed consumption patterns demanded of the developed world run counter to free trade and will require continued political interventions at an international level.

6.2.3 Food wastage, usually in the home, is estimated to be in the region of 172kg / household / year[xxiv]. A significant proportion of this (approximately 60%) is believed to be avoidable and arises from fresh vegetables, salads and bakery products[xxv].

6.2.4 Consumption in the developing world will increase as wealth increases, as will the use of animal products.

6.2.5 Land use for agriculture will need to increase, but the extent will depend on diets adopted, technical progress in farming and freedom of trade. Globally, as well as locally, food production and consumption have environmental impacts. At a very basic level land use for agriculture takes away from land left wild, a factor most apparent in areas such as South America, where native rainforest has given way to grassland and arable production.

6.3 Recommended actions

6.3.1 Jersey is not in the position to increase the area of land given over to agricultural production. However, addressing food wastage holds potential to reduce overall food needs. Similarly, the relationships between over-consumption and lower health outcomes provide further opportunities to reduce demand. Promoting public awareness in each of these areas would, it is hoped, lead to a reduction in the reliance on global food supplies.

7. Guarding against supply shocks

7.1 Oil and natural gas

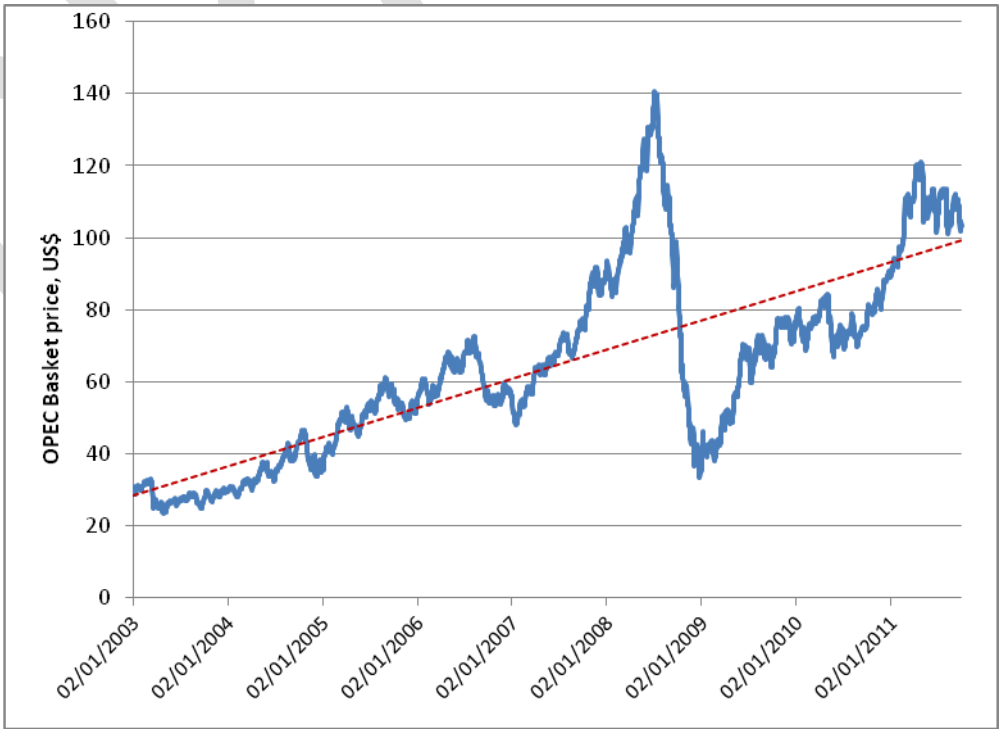
7.1.1 The price of oil, natural gas and oil and gas products (including fertilisers) has shown considerable volatility over recent years, particularly in the 2008 period when the impact on food prices was marked. Analysis by the European Commission is particularly relevant as regards longer term supply; price hikes may occur for a variety of reasons but changes in the supply side will generally serve to adjust prices to more normal levels[xxvi].

7.1.2 There is no *economic* reason why the supply of oil and gas should suffer sudden shocks, albeit that price hikes do occur through speculation and mismatch between supply and demand. Supply shocks for these major commodities tend to have political rather than economic roots. The 1973 supply shock was a political response (to reduce global oil supply) by the Arab members of OPEC to America's support of Israel's occupation of Sinai in the Yom Kippur war.

7.1.3 The four largest stocks of oil are held in Saudi Arabia, Venezuela, Iran and Iraq; the four largest stocks of natural gas are held by the Russian Federation, Iran, Qatar and Turkmenistan. Insomuch as the political decision making of these countries is outside the influence or control of western European politics, the risks of supply shocks remain present.

7.1.4 However, European Commission Council Directive[xxvii] 2006/67/EC underpins an obligation by the EU member states to 90 day storage of oil providing a cushion against import-supply shocks. Recent data indicates that UK stocks held are in the region of 111, 108, and 380 days of consumption for petrol, diesel and fuel oil respectively.

Figure 7.1 OPEC Basket price, US$



7.1.5 The increases in oil prices of recent years are shown in Figure 7.1 and are clearly well above rises in income for the past decade. As Brazil, Russia, India and China (the BRIC countries)

continue to develop they are likely to continue to drive demand and therefore price increases would not be expected to slow. Increases in price will on the one hand make alternative fuels (and investments in fuel efficiencies) more economically attractive but on the other they will, in the short-medium term, drive up the prices of goods (including, quite possibly, through the use of land for energy cropping). Reducing dependence therefore makes sense from an economic as well as an environmental viewpoint.

7.1.6 However, previous research[xxviii] has demonstrated that the major inefficiencies in food transport occur between the retailer and the consumer. Whilst there is commercial pressure for fuel and transport efficiency up to the point of purchase, beyond this point such commercial pressures cease. As such, if fuel efficiencies are to be gained in relation to food consumption then these will come not from retailer actions but from a change by the public in the ways in which they shop; a move to home delivery, to shared transport, and to shopping patterns that make most efficient use of vehicular transport.

7.2 Shipping

7.2.1 Provision of ferry services to Jersey have been reviewed previously[xxix]. Security and continuity of supply is recognised to be of vital importance to Jersey, with a minimum frequency of three rotations per week in the winter months.

7.2.2 In addition to the single provider providing all-year-round vehicular freight ferries there are additional service providers providing passenger ferries to France during the summer months and providing load-on load-off freight services all year round. The small scale of provision to the Channel Islands is such that the viability of a year-round service is dependent upon monopoly provision of car/passenger ferries from the UK.

7.2.3 However, the volumes of freight shipped between Jersey and the UK are relatively low, and there is a marked skew towards imports. A major cost for shipping fleets is of course the price of oil. The Oxera report (2009) indicates that fuel makes up 44% of operating costs for the conventional (freight carrying) ferry to Jersey; since this calculation was published the price of marine gas oil has doubled[xxx]. Hence the price of freight transport is unlikely to be driven down either by competition between operators or by any reductions in operating costs.

7.2.4 A sample quote for a delivery of 25 tonnes of goods to be shipped to Jersey, with no back-hauling, is in the region of £2000. Put another way, that's 8 pence per kg additional costs or, for fertilisers and animal feeds, an additional £80 per tonne. Additional to this is any haulier charge (for time and use of vehicle), so that even if preferential rates for can be negotiated there will remain a significant cost to importing foodstuffs and agricultural supplies (e.g. animal feed, fertiliser). Export costs may be less since the majority of goods are delivered to Jersey with no backhauling, providing space for exporters to negotiate.

7.3 Possible impacts of supply shocks

7.3.1 Whilst supply shocks for oil and for shipping are unlikely, they are nevertheless possible. A supply shock for oil would require a greater efficiency of use of Jersey's supplies, but the major impact would be on getting freight to the UK ferry terminals. As such, contingencies would rely on the actions of the UK Government and of the individual retailers supplying Jersey. The impacts of longer term stoppages would require emergency measures to ensure the fair distribution of fuel and prioritisation amongst public, private and commercial users. These measures are provided in the Emergency Powers (Fuel, Electricity and Gas) Act, 1991.

7.3.2 The impacts of sudden, brief stoppages to shipping are addressed in Chapter 3 (availability). The impacts of longer term stoppages would require emergency measures to ensure the fair distribution of food. These measures are provided in the Emergency Powers (Food) Act, 1991.

7.4 Ways forward

7.4.1 Reserves of oil are necessary to maintain the agricultural, food processing and distribution and food retail sectors. Jersey might therefore consider following the lead of the EU Member States in ensuring that on-island storage is sufficient to guard against supply shocks. Whilst 90 days storage may be viewed as excessive a minimum buffer level appropriate to Jersey should nevertheless be set.

7.4.2 Emergency planning for food imports might usefully work with retailers and the shipping companies to develop their contingency plans for events that may prevent or disrupt shipping so that the impact of short-term disruptions can be minimised. This could include, for example, the provision of additional warehousing on a temporary basis and agreements on the prioritisation of freight over private passenger vehicles.

7.5 Ways forward

7.5.1 **PR12.** States of Jersey to establish in law the minimum acceptable storage levels for fuel supplies (fuel oil, petrol, diesel, aircraft fuels etc) and to work with suppliers to ensure that the capacity for this is maintained.

7.5.2 **PR13.** Emergency Planning to develop and agree with industry (food retail and shipping companies) contingency plans for events that may prevent or disrupt shipping so that the impacts on food availability and affordability of short-term disruptions can be minimised.

7.5.3

References

[i] European Commission, 2010. The CAP towards 2020: Meeting the food, natural resources and territorial challenges of the future. Brussels, 18.11.2010 COM (2010) 672 final.
[ii] Defra, 2010. UK Food Security Assessment: Detailed analysis.
[iii] Oxera, 2009. The supply of ferry services: a policy assessment. *Oxera Consulting Ltd, Oxford, UK.*
[iv] Jersey Household Spending Survey 2009/10. States of Jersey Statistics Unit
[v] Agricultural Statistics 2010. States of Jersey Economic Development Department
[vi] Nix, J. 2008. Farm Management Pocketbook. *The Andersons Centre, Leicester, UK*
[vii] British Nutrition Foundation, 2004. Nutrient Requirements and Recommendations.
[viii] Census. March 2011. States of Jersey Statistics Unit
[ix] Food Energy - methods of analysis and conversion factors. FAO, http://www.fao.org/DOCREP/006/Y5022E/y5022e04.htm
[x] CIA World Fact Book, Central Intelligence Agency, USA
[xi] Jersey Household Spending Survey 2009/10. States of Jersey Statistics Unit
[xii] Jersey Income Distribution Survey Report 2009/10. States of Jersey Statistics Unit
[xiii] Comparison of consumer prices. June 2011. States of Jersey Statistics Unit
[xiv] European Commission, 2008. Note to the file. Subject: What caused the present boom in agricultural prices? Brussels, D(2008) TH/14147
[xv] Comparison of consumer prices. June 2011. States of Jersey Statistics Unit
[xvi] Agricultural Statistics 2010. States of Jersey Economic Development Department
[xvii] Agricultural Statistics 2010. States of Jersey Economic Development Department
[xviii] Agricultural Land (Control of Sales and Leases) (Jersey) Law 1974
[xix] Protection of agricultural Land (Jersey) Law 1964
[xx] Nix, J. 2008. Farm Management Pocketbook. *The Andersons Centre, Leicester, UK*
[xxi] Data from the British Potato Council
[xxii] Data from Jersey Water website
[xxiii] http://ukclimateprojections.defra.gov.uk/content/view/1377/499/
[xxiv] WRAP, 2011. Synthesis of food wastage compositional data 2010. WRAP, November 2011.
[xxv] WRAP, 2011. New estimates for household food and drink waste in the UK. WRAP, November 2011.
[xxvi] European Commission, 2008. Note to the file. Subject: What caused the present boom in agricultural prices? Brussels, D(2008) TH/14147
[xxvii] EC Council Directive 2006/67/EC
[xxviii] Foster, C., et al. 2006. Environmental Impacts of Food Production and Consumption. Defra, 2006.
[xxix] Oxera, 2009. (as above)
[xxx] Bunkerworld.com; price of marine gas oil at 30.09.12 US$941/tonne; price used within Oxera calculations US$475/tonne