JERSEY ISLAND PLAN
AGRICULTURAL SURVEY

A METHODOLOGY FOR ASSESSING THE IMPLICATIONS OF PROPOSALS FOR THE DEVELOPMENT OF AGRICULTURAL LAND

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1. INTRODUCTION

1.1 Rural Planning Services is charged as part of its brief to provide the Island Plan Team with:

> "A technical methodology and adminstrative framework which will enable the Planning Authority, in conjunction with the Department of Agriculture to assess the impact of development proposals on Jersey agriculture."

1.2 In order to develop the methodology RPS has undertaken a detailed investigation of the Island's agricultural industry the results of which are summarised in the Technical Report (April 1982). In addition a detailed geographical survey has been undertaken in order to establish the nature of farming and growing activities in areas which are under particular development pressure. The results of this survey are summarised in the Geographical Report (May 1982). In order to establish fully how the ideas in this report have been developed it is necessary to have read these earlier documents. However, this final report can be read in isolation in order to establish what approach is being suggested.

1.3 The assumption underlying the whole of this report is that there is scope for improvement in the agricultural assessment for planning purposes of how development proposals affect the agricultural industry. This scope for improvement exists because neither IDC nor DAF has had the opportunity to develop a comprehensive and consistent method of land appraisal. (In this context it is interesting to note that the Ministry of Agriculture took 4 years, from 1962 to 1966, simply to develop their ideas about how a land classification should operate in England and Wales and another 10 years to implement the classification). RPS has been afforded the opportunity, over the period January-May 1983, to examine the problem as part of the Island Plan Team. The results of these investigations indicate clearly a way forward to developing a system unique to Jersey and capable of taking account of the particular characteristics of its agricultural industry.

1.4 The methodology being suggested should:

(a) provide an assessment framework capable of describing the agricultural importance of individual sites irrespective of size or location;

(b) be capable of consistent, Island-wide application by DAF officers as part of their day-to-day work;

(c) ensure that IDC is furnished with information capable of facilitating proper implementation of current land use planning policies;

(d) when generally known and understood act to prevent applications for development which have little chance of success.

1.5 The methodology comprises four levels of analysis of any site. These require an examination of:

(a) the inherent potential of the land as defined by its physical characteristics, notably soil, topography and climate;

(b) whether that potential is being fully realised as measured by the range of crops being grown, and the economic performance;

(c) what scope there is for improving productivity on the land (if it is not already realising its full potential);

(d) the implications for other land within the same farm unit if the site were to be developed and lost to agriculture.

1.6 The next four sections of this report describe the approach which is suggested and which aims to achieve an adequate assessment of each of these four factors.

2. MEASURING LAND QUALITY

2.1 A detailed investigation of the physical characteristics of farmland on the Island has permitted the identification of seven discrete soil groups. These are described in general terms in Table 1. The following paragraphs describe how these soils can be identified in the field.

2.2 The Trinitē series comprises deep, well drained silty to fine sandy loams (sometimes becoming heavier textured with depth) derived from loess, loess head or finer textured, blown sand deposits. These soils are capable of sustained double cropping; slight variations in aspect can cause variations in earliness. These soils may benefit from irrigation, for certain cropping patterns or in particularly dry summers, but are generally capable of sustained cropping without because of their highly moisture retentive character. The Trinitē series occurs extensively on the loess deposits and fringing drifts which cover over 80% of the Island.

2.3 The Colombier series comprises well drained silty to fine sandy loams overlying Jersey shale. Where this parent material occurs less than 35cm from the soil surface the Colombier (shallow phase) is recognised; this series is capable of sustained single and occasional double cropping. The Colombier (deep phase) (soil depth greater than 35cm) is, in many respects similar to the Trinitē series although second crops may be lower yielding, without irrigation, with depth lowering available water capacity (AWC). Colombier series occur mainly on the fringes of loessial deposits on gently sloping valley sides, and, more extensively, on the west of the Island. Small patches of Colombier series occur within the main area of the Trinitē series, where loess cover is thin over underlying bedrock.

TABLE 1: SOIL SERIES ON JERSEY

Soil Series	Soil Phase	Soil Texture	Depth (cms)	Drainage Status	Parent Material	Likely Cropping
Trinité	—	Fine sandy loam to silt loam.	90+	Well or moderately well drained.	Loess. Loess Head. Blown sand. (fine textured)	Double cropping; early potatoes, cauliflower etc.
Colombier	i) shallow ii) moderately deep	Very fine sandy to silt loam.	i) up to 35. ii) more than 35.	Well.	Jersey Shale or thin loamy drift over shale.	Double cropping; early potatoes, cauliflowers etc.
Noirmont	i) shallow ii) moderately deep	Sandy loam.	i) up to 35cm. ii) more than 35cm.	Well.	Igneous rocks.	Double cropping possible; single cropping if shallow.
Samares	i) imperfectly drained ii) poorly drained	Fine sandy to silt loam.	30 - 45	i) Imperfect. ii) Poor.	Loess or blown sand below 40ft AOD in level areas	Typically single cropping (outdoor tomatoes). Double cropping possible (second 'catch' crop).
St. Ouen	i) shallow ii) moderately deep	Loamy sand to sandy loam.	i) up to 35. ii) more than 35.	Well.	Blown sand over hard rock or sand.	Generally single cropping: early potatoes. Double cropping possible in some years on some sites.
Rozel	i) southerly aspect ii) northerly aspect	Fine sandy to silty loam.	Variable 30 - 50.	Well.	Head or igneous rocks.	Cotil land. Slopes greater than 1 in 5. Generally single cropping: early potatoes.
Radier	—	Fine sandy to silty clay loam.	10.	Very poor.	Alluvium/valley bottom drift.	Pasture (restricted grazing).

2.4 The Noirmont series is derived from igneous rocks which occur on the coastal margins of the Island. Soils are sandy loams or loamy sands overlying weathered bedrock at variable depths. The Noirmont series (shallow phase) (soil depth < 35cm) is quick to warm up in spring, particularly on sloping sites, but is only capable of single cropping because of limited moisture reserves. The deep phase (soil depth > 35cm) has a higher AWC, and is, therefore, capable of double cropping in some years, but both phases could benefit from irrigation.

2.5 The St. Ouen series is the very early land of the Island (excluding that occurring on slopes of more than 1 in 5 see 2.7 below). These sandy loams or loamy sands are similar in character to the Noirmont series but are derived from coarse blown sand overlying a variety of bedrocks. As with the Noirmont soils, irrigation would increase agricultural productivity.

2.6 The Samares series occurs on low-lying deposits of blown sand and loess (generally under 40 ft AOD). The main limitation to agricultural use is drainage status, the series being divided into imperfectly drained (mottles at more than 30cm from the surface) and poorly drained (mottled above 30cm) phases. These soils would benefit from land drainage.

2.7 The Rozel series is cotil land occurring on slopes of greater than 1 in 5. These soils are typically the very earliest potato land and are rarely double cropped.

2.8 Radier series soils occur on alluvial deposits in river valleys and small areas of lowland marsh. They are generally heavy textured, poorly or very poorly drained and capable only of limited grazing use.

2.9 Appendix 1 sets out a checklist for the recognition of these series.

2.10 So far a distinction has been made between the physical characteristics of different soils and their general agronomic capability. Although very useful, this does not provide a common measure of performance for each soil. For this, it is necessary to refer to an economic indicator of performance; this is most appropriately based upon gross margins. RPS has undertaken an extensive exercise designed to establish the most appropriate range of gross margin performance for each soil series.

2.11 The information given in Table 2 on the earliness of lifting potatoes, and crop and grass yields for different soil types formed the basis for gross margin calculations, which are shown in detail in Appendix 2. For clearer presentation, these gross margins were converted to indices on a scale of 1-100. The summary indices are shown in Table 3. Where no useful distinction could be made between the performance of different soils, none was made in the summary table.

2.12 Income support to farms in the form of production bonuses and input subsidies was excluded from gross margin calculations. The reason for this was to conform to an assumed desirability to produce crops and milk at least cost to the consumer or taxpayer. By excluding income support from the calculations, an accurate measure of the relative performance of soils in Island terms is obtained.

2.13 The indices are presented in Table 3 for three different land uses: early potatoes followed where possible by winter cauliflowers; milk production; and outdoor tomato growing.

2.14 Because of the variation in performance between 'good' years (top of the band) and 'bad' years (bottom of the band), there is overlap of the early potato/winter cauliflower performance indices. With this cropping, it is possible to say that the Trinité series

TABLE 2: CROP YIELDS AND SOIL SERIES

SOIL SERIES	TRINITE	COLOMBIER		NOIRMONT		SAMARES		ST. OUEN		ROZEL		RADI
Soil Phase	---	(i) Shallow	(ii) moderately deep	(i) shallow	(ii) moderately deep	(i) imperfectly drained	(ii) poorly drained	(i) shallow	(ii) moderately deep	(i) southerly aspect	(ii) northerly aspect	---
Crop												
Early potatoes	H (ME)	M (VE/ME)	H (ME)	L (VE)	M (ME)	M (ME)	---	L (VE)	M (VE)	L (VE)	---	---
Cauliflowers	H	M	H	L	M	M	---	---	M	---	---	---
Outdoor tomatoes [1]	M/H	---	M/H	---	M	H	M	---	---	---	---	---
Calabrese	H	M	H	---	L/M	L/M	---	---	M	---	---	---
Parsley	H	L/M	H	L/M	M/H	M/H	L/M	---	M/H	---	---	---
Courgettes	H	M	H	L/M	M/H	L/M	---	---	L/M	M	---	---
Outdoor Flowers [2]	H	---	H	---	M/H	M/H	---	---	M/H	---	---	---
Grass	H	M	H	L	M	H[3]	L/M[3]	L	M	---	---	L[3]

Yield Level: H High; M Medium; L Low

Earliness: VE Very Early (Early May); ME Medium Early (Mid-May); E Early (Mid-May onwards)

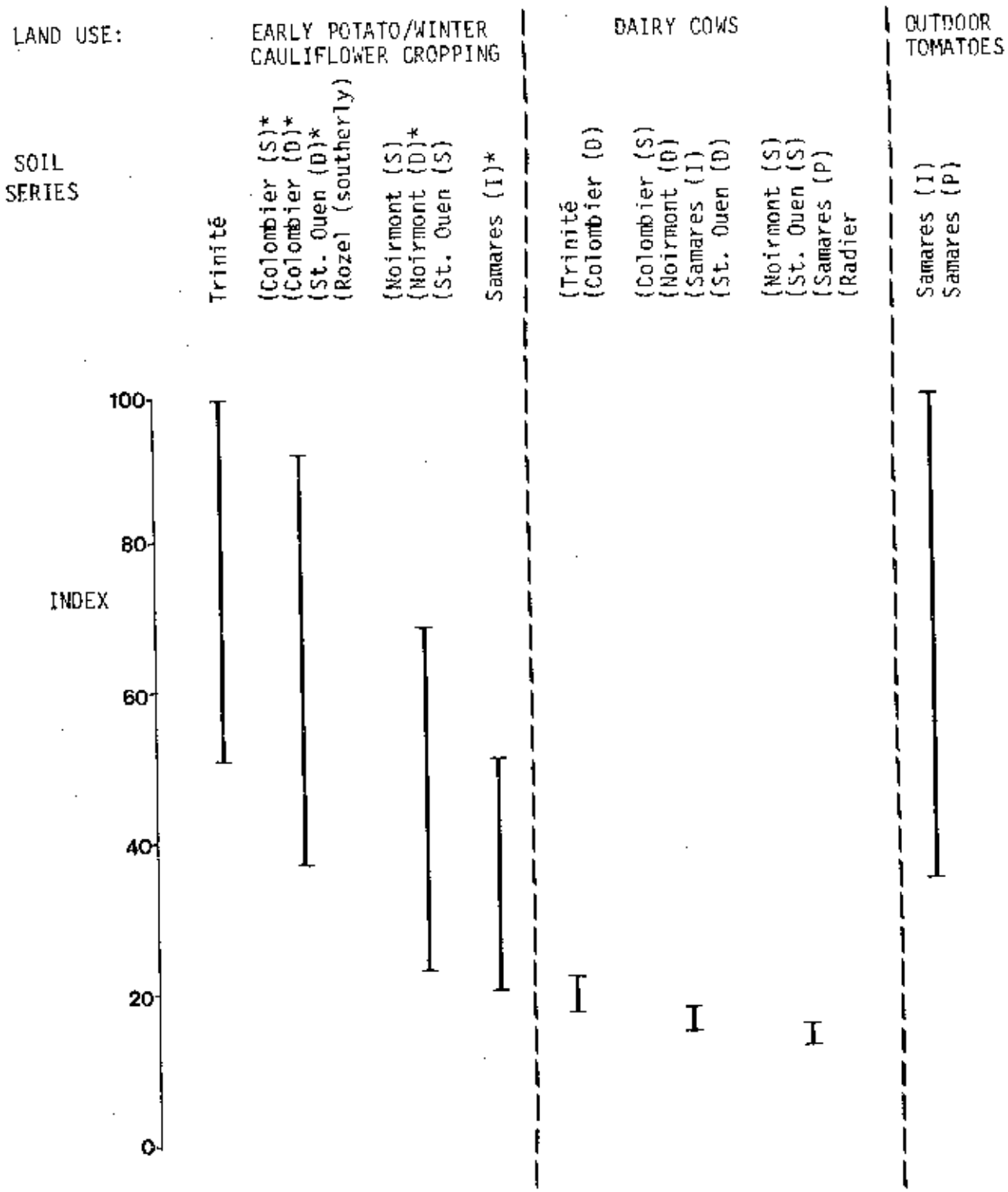
- not generally grown on a sustained basis; yields likely to be variable.

1. Used to be grown widely over the Island but now only grown in St. Clements/Grouville which are very sheltered growing areas.

2. Outdoor flowers (and bulbs) are largely produced by specialist growers, other production seems to be on an ad hoc basis.

3. Limited grazing season due to wetness of soils.

TABLE 3: SOIL SERIES PERFORMANCE INDICES



(S) Shallow phase (<35cm)
(D) Moderately deep phase (>35cm)
(I) Imperfectly drained phase
(P) Poorly drained phase
* Double cropping in some years at least, early potatoes only where single cropping
(Individual Indicies for each soil series are given in Appendix 2)

is always capable of producing a higher performance than Samares soil. The Colombier, St. Ouen (deep phase) and Rozel group together as the second highest performing soils, followed by Noirmont and St. Ouen (shallow phase) series.

2.15 The Radier series unlike the other soils is unsuitable for crop production, and supports dairy cows at a low stocking rate. It is clear that Radier is the soil of least value to agriculture.

2.16 Although early potato/winter cauliflower performance is poor on Samares soil, outdoor tomato performance can be very high. However, outdoor tomato production has declined in popularity since 1950 to become a minor crop in 1981 (351 vergees).

2.17 Where soil conditions allow double cropping, RPS have identified that the highest performance in one year is achieved by growing early potatoes followed by winter cauliflowers. However, this 'annual' performance is in practice often higher than the average performance taken over a number of years. This is because, in some years, late harvesting of winter cauliflowers prevents the planting of early potatoes or fields are sometimes left fallow after winter cauliflowers to ensure timely planting of early potatoes the next year. Third, early potatoes are sometimes followed by crops which have been generally less profitable than winter cauliflowers (eg. courgettes). This should not affect the ranking of soil series in term of cropping potential. But it does affect comparison between arable and dairying enterprises. The result is that, in practice, the dairy performance figures are more favourable than Table 3 indicates.

2.18 The use of gross margins (presented as indices in Table 3) certainly provide the most accurate assessment of the relative agricultural potential of soils within a farming system. However, comparison between farming systems, here between dairying and cropping, is not reflected accurately. For inter-enterprise comparison, Net Farm Income is a better indicator of relative performance. In addition to the reasons given in the last paragraph for lower cropping performance indices when averaged over several years, and as shown in Chapter 6 of the Technical Report, arable Net Farm Incomes are often quite similar to those of dairying. This is because arable farms are not wholly comprised of the best soil series; regular labour costs are higher on arable farms, and less profitable crops than early potatoes and winter cauliflowers have been grown.

2.19 There are reasons why the higher potential performances atttained by early potato/winter cauliflower cropping should not be ignored even when land is used for dairy cows. First, if the holding already has an arable enterprise (is a dairy and arable farm), then the farmer has the opportunity to extend use of the land for early potato/ winter cauliflower cropping. Second, even if the farm is specialist dairy, the land under question may be rented; with rented land, and associated lack of security of tenure, there is theoretically no reason why the landlord cannot choose, at short notice, to rent the land to a farm with an arable enterprise. Finally, there is owned land belonging to a specialist dairy farm. The introduction of an arable enterprise on such a farm would involve some transfer costs. These are obviously farm-specific. But in general, with a high reliance on casual labour in crop production and the creation of crop storage space with a reduction in herd size, such enterprise transfer costs will be low.

3. MEASURING CURRENT FARM PERFORMANCE

3.1 The Technical Report describes the Farm Type Classification devised in order to be able to establish economic parameters for the different farming systems. This Classification is shown in Table 4.

TABLE 4: FARM TYPE CLASSIFICATION

Type of Farm	Distribution of Total Crops and Grass Area[1]
Specialist Dairy	More than 90 per cent of total crops and grass in grass and fodder production for a dairy herd.
Dairy and Arable	90 per cent or less of total crops and grass in grass and fodder production for a dairy herd. The remainder of the cropped area is used for outdoor crop production.
Arable	Solely outdoor crop production including fruit and vegetables, bulbs and flowers, and cereals.
Glasshouse Only	Solely glasshouse production. There may be some unused outdoor land.
Glasshouse and Arable	(i) 5 per cent or less of the cropping area is in glasshouse production. (ii) Greater than 5 per cent of the cropping area is in glasshouse production, the remainder is arable.
Pigs and Poultry	Intensive commercial production.[2]

1 This is the cropped area, which because of double cropping outdoors and under glass is higher than the actual land area.

2 No current data available: due to the small size of this group no further analysis has been undertaken in this report.

3.2 Utilisation of data from the Farm Secretarial Service records enables a comprehensive economic appraisal of each farm type to be created. These data can be used as yardsticks against which to measure any individual farm's performance. Table 5, 6, 7, and 8 summarise the major indicators of performance.

TABLE 5: COMPOSITION OF GROSS MARGINS (£/VERGEE OF CROP) FOR THREE OUTDOOR CROPS

	Early Potatoes (1982)	Winter Cauliflowers (1981/82)	Outdoor Tomatoes (1981)
Yield	3.52	1,562 heads	732 (12lb trays)
Return/unit	270	0.21	1.24
Gross value (less commission, handling, insurance freight)	739	321	907
Variable Costs			
Packing materials	21	63	228
Seed	66	7	83
Fertiliser (net of subsidy)	39	13	46
Chemicals (net of subsidy)	11	4	53
Contract work	9	1	10
Sundries	4	-	11
Total	150	88	431
Gross Margin (excl. bonuses)	589	233	476

TABLE 6. : GROSS MARGIN VARIATIONS (£/VERGEE)

	Year	Sample Size	Average	Bottom 25% average	Top 25% average	Worst	Best
Early potatoes	1981	46	232	81	372	-7	531
	1982	50	289	317	803	123	973
Maincrop potatoes	1981/82	19	447	239	719	111	816
Cauliflowers	1980/81	37	189	92	292	39	407
Courgettes	1981	16	126	-40	180	-45	270
Cereals	1981	16	58	30	104	23	124
Dairy cows[1]	1981	28	196	93	130	54	200

1 Assuming the average stocking rate for the sample in 1981 of 2.49 vergees of grass and fodder milking cow.

TABLE 7: MACHINERY, BUILDINGS AND LABOUR COSTS 1981

£/vergee

		Arable	Specialist dairy	Dairy & Arable	Glasshouse only	Glasshouse and arable
Labour		184	90	126	5,387	393
Machinery		90	58	61	1,665	272
Buildings		12	13	8	1,136	88
Total		286	161	195	8,188	753
% of total						
Labour		64	55	64	65	52
Machinery		31	36	31	21	36
Buildings		5	9	5	14	12
Total		100	100	100	100	100
Variation from average (£/vergee)						
Labour	Highest 25%	+54	+8	+58	-79	+23
	Lowest 25%	-48	-22	-63	-1,157	-115
Machinery	Highest 25%	+34	+24	+2	+966	0
	Lowest 25%	-30	-20	-24	-309	+10
Buildings	Highest 25%	+13	+1	+4	-294	+18
	Lowest 25%	-8	-7	-2	+263	-12
Total	Highest 25%	+101	+33	+64	+593	+41
	Lowest 25%	-86	-49	-89	-1,203	-93

TABLE 8: COMPARISON OF NET FARM INCOME FOR THE FIVE MAIN FARM TYPES (INCLUDING BONUS PAYMENTS AND SUBSIDIES) (1981)

Farm Size	Sample Size	Average	Bottom 25%	Top 25%
£/Vergee of Farmland [1]				
Arable	20	27	-102	120
Glasshouse Only [2]	6	-80	-7,552	3,698
Glasshouse & arable [3]	11	-32	-226	152
Specialist Dairy	8	68	21	103
Dairy and Arable	14	29	-41	98
£/Holding				
Arable	20	1,426	-8,785	8,532
Glasshouse only [2]	6	2,455	-12,838	15,154
Glasshouse & Arable [3]	11	3,146	-9,116	24,188
Specialist Dairy	8	6,022	-2,303	15,547
Dairy and Arable	14	4,532	-3,170	18,153

1 Because of the different farm sizes incurring positive and negative Net Farm Incomes, average values per vergee could be negative and values per farm positive (calculating from first principles).

2 Only glasshouse cropping area included (outdoor land is excluded).

3 Less than 5% of crops and grass area under glass.

3.3 For any farm on which it is proposed to develop part or all of the land, it is necessary to:

(a) establish existing cropping and stocking and, consequently, place in the appropriate farm type;

(b) investigate the farm accounts in order to construct an estimate of the net farm income being earned; (Appendix 3 describes the nature of net farm income as a measure of performance;)

(c) compare and contrast the subject farm with the farm secretarial service data in order to establish its relative performance in respect of: gross output, gross margin, fixed costs and net farm income;

(d) make an appraisal of the net farm income being generated in the light of the farm's debt burden and interest repayment requirement;

(e) examine the cropping on the land which is the subject of the development proposal to establish whether the cropping and performance is what would be expected from the site involved.

3.4 On the basis of following these procedures it will be possible for DAF to furnish IDC with a detailed (but short) appraisal of the current status of the farm in question. Operation of this approach requires most importantly:

(a) DAF to keep up-to-date records of performance by farm type (Tables 5-8 in this report would, for example have to be updated annually). The availability of these data has important implications beyond land use planning and would be highly beneficial in any event;

(b) farmers to make available all farm records, including accounts, for the assessment of the application; this may create difficulties in landlord-tenant relationships; in fact the instigation of any appraisal methodology may provide a natural brake upon the number of applications received: the more detailed the appraisal the greater the deterrent; requiring the release of detailed information can be looked upon as a test of the validity of the development proposal.

3.5 It is apparent that no new or sophisticated techniques are being proposed. This is quite deliberate; it is intended that DAF officers experienced in agriculture and farm business management techniques should be able to apply exactly that knowledge to their land use planning work.

4. MEASURING OPPORTUNITIES FOR IMPROVING PERFORMANCE

4.1 It is obviously important not to allow automatically urban development of farmland, on the basis that the specific farm is apparently uneconomic, if that economic position could be improved. The farm business management approach outlined in the previous section provides exactly the correct framework for assessing whether and how a farm's performance can be improved.

4.2 The assessment of current performance allows any deficiency to be identified. Put simply it can be established whether poor performance is due to inadequate output or unnecessarily high fixed or variable costs, or any combination of these. Having established this an attempt can be made to isolate any specific difficulties and suggest remedies. Again this is normal farm management practice and can be viewed as an integration of DAF's land use responsibilities with its advisory and extension work.

4.3 It is at this stage that an integration of the soils information about the subject land and performance can be achieved, especially in relation to output and variable costs. It cannot be expected that a farm with below average quality land should be able to perform in an above average fashion in economic terms.

4.4 The DAF officer examining any particular case should:

(a) identify the cause of poor performance;

(b) explore possible remedies;

(c) establish how any remedies could be implemented: this to include an appraisal of the likely costs involved and the resultant increase in income.

4.5 It is necessary to be aware of the implications of two particular circumstances. First, there is the problem of dealing with abandoned land. Obviously, it is possible to establish into which soil series the land falls. It is also a simple matter to state that the land is currently performing no useful agricultural function. However, no effective system of appraisal on the Island can allow the fact of abandonment to give undue weight to that land when deciding whether or not to allow permission for development. For, if that were to be the case, there would be tremendous pressures towards increasing abandonment. Ultimately the tendency to abandonment to achieve development can only be prevented by legal and/or administrative devices; these will be dealt with in Section 6. However, from a technical point of view DAF can provide the necessary historical perspective by describing under what circumstances the land went out of agricultural use and whether there were any valid agricultural reasons for this.

4.6 The second particularly difficult case relates to farms which are plainly under-performing and which should apparently shift from one farm type to another. The technical problem here is establishing the cost of such a system change. The fixed cost assessment derived from the farm secretarial service data provides the necessary base information about the annual costs of funding the alternative farming system. It is also necessary, however, to establish the cash flow requirements to fund the initial change. This is all a matter of straightforward economics. Far more difficult to manage are the questions of whether the farmer in question would be likely to make such a change and if he did whether he would have the skills to make a success of the new system. It was shown in Section 2 that, in particular, the possibility and cost of introducing an arable enterprise into a specialist dairy farm should be considered when the land being assessed is owned by the farmer.

5. MEASURING THE EFFECT OF LAND LOSS ON INDIVIDUAL FARM UNITS

5.1 The loss of land from a farm causes dislocation in the balance of costs as these relate to output. The result is that the reduction in net farm income is usually proportionately greater than the loss of land. Experience shows that this imbalance can in certain circumstances be very significant. It derives from the fixed nature of the costs involved in keeping the farm business in existence. To a large extent the cost of having and keeping buildings, machinery and labour is independent of the area of land comprising the farm. For practical purposes, when discussing marginal changes in farm size, fixed costs will remain constant. Thus any loss of land will mean that the fixed cost burden has to be carried on a smaller land area thereby increasing costs per vergee.

5.2 It is possible, therefore, to generate a standard simple formula to estimate the implications of land loss. If it is assumed that the extent of economic loss is measured by the reduction in net farm income then:

NFI_F = NFI_E less GM_L

where: NFI_F = net farm income which will be achieved subsequent to land loss;

NFI_E = existing net farm income;

GM_L = gross margin on land to be lost.

And:

NFI_R = NFI_E less NFI_F

where NFI_R = net farm income reduction.

5.3 As well as estimating the extent of reduction, it is, perhaps, even more important to understand the implications of the level to which income has been reduced. It is difficult, of course, to define an Island-wide income standard below which farms should not be allowed to fall. Many farmers are, in any case, prepared to accept a low standard of living as long as they can remain farming although they would, of course, prefer a high income. However, it was felt appropriate and necessary to attempt to devise a viability threshold; this detailed approach is shown in Appendix 3. The threshold calculated was £6,000/per annum/per unit. This or some other (perhaps more appropriate) threshold can be used to measure farm viability. Reducing a farm to below a chosen viability threshold creates uncertainty as to the future use of land remaining in the holding and all other resources. It seems prudent therefore to avoid the possibility by not allowing farms to be made unviable. The possibility, of course exists that land could be amalgamated with another unit and may, in fact, be used more effectively. It is necessary therefore, to examine each case individually, being particularly sympathetic to the needs of the tenant farmer.

6. INTERPRETATION AND POLICY

6.1 Employing the formulation described in the previous sections will enable DAF to provide IDC with information about the exact agricultural circumstances of any piece of land.

6.2 The next stage in the assessment procedure is to understand how DAF and IDC should interpret this information. Such interpretation can only take place within the constraints of existing policies. It is important to recognise that:

(a) policies towards the non-agricultural development of agricultural land cannot be developed in isolation; it is necessary to be aware of other land use demands generated within the community;

(b) there will, in any community, including Jersey, be legitimate pressures to allow the development of agricultural land; it is not a tenable position to veto such transfers between land uses when the implications of such a veto cannot be foreseen and may be more detrimental to the Island's interest.

6.3 The Island Plan Team is currently investigating various options available for accommodating the expected population growth in the plan period. At present the working hypothesis is that the bulk of necessary development can be located within the existing urban area. The benefits of such a policy are to be found in a reduction in the amount of agricultural land required to be developed. There may, however, be disbenefits following the policy in the form of undesirable increases in residential densities.

6.4 If it could be assumed that there will be no requirement whatsoever for greenfield site development there would be no need for an appraisal methodology. All such applications would be refused as a matter of course. Such a policy has been ostensibly in existence since 1963. It has not, however, proved effective and there have been significant releases of land. It seems realistic, therefore, to assume that the Plan must allow some scope for greenfield site development, otherwise irresistable pressures will be placed upon the planning system.

6.5 It is not possible at this stage in the generation of the Island Plan to identify the likely area of agricultural land which will (beneficially) be released in the Plan period. Indeed, the Plan Team hold the view that it may never be appropriate to be so specific, as such statements tend to be self-fulfilling.

6.6 Given these uncertainties the adoption of a four-stranded appraisal method allows flexibility in formulation of policies. For example, the information provided can be interpreted to allow the implementation of 2 policies of significantly different complexity and at the extremes of what is possible.

6.7 "Policy A

The IDC will permit the non-agricultural development of agricultural land only where it can be demonstrated there will be the absolute minimal loss of agricultural potential resources and production."

In this case development would only be allowed upon land which:

(a) is comprised of the least valuable soil group;

(b) is not realising even the very limited potential of that land;

(c) cannot be made to realise that potential;

(d) forms part of a farm unit which is unviable and cannot be made viable.

It should be obvious that very little land will be made available for development with the operation of such criteria.

6.8 "Policy B

The IDC will permit the non-agricultural development of agricultural land only where it can be demonstrated that the land in question is not the most valuable on the island."

In this case development would be allowed upon all land except that which:

(a) falls into the most valuable soil group;

(b) is currently realising that highest potential;

(c) will continue to realise that potential;

(d) forms part of a farm which achieves economic results comparable to those farms comprising, say, the top 25% performers for that farm type.

This policy and the application of these criteria may allow a significant release of agricultural land.

6.9 In short a package of criteria has been devised which can be adopted to respond to any particular policy formulation. It is not appropriate, as explained above, for RPS to draft specific policies. It is, however, possible on the basis of these investigations to offer advice as to what sort of policies it might prove practicable to effect.

6.10 The Geographical Report identifies the distribution of the various soil series in areas under the greatest development pressure. This provides a critical guide to policy formulation. The Radier series clearly has the lowest agricultural value. However, within the survey area, there were only approximately 85 vergees of Radier soil; indeed, there was only a small area of land of lower agricultural value than Trinité, the soil series of highest agricultural value. It follows that, in practical terms, it will be difficult to operate a policy similar to that defined a Policy A above unless only a small greenfield site release is envisaged.

6.11 The performance indices for the various soil series provide clear guidance as to the relative potential of the different soils. For reasons explained previously it is difficult to make comparisons between dairy and arable systems. However, within the systems the indices can be used with a reasonable degree of certainty. The large overlap between the soils under arable cropping is a realistic reflection of the range of variables which act to produce any given level of economic performance. Unless, therefore, there seem reasons for not so doing it is appropriate to use the ordering of potential produced by the index.

6.12 However, it would appear likely that if any significant development of agricultural land is to take place in the priority area there is a high probability that some of the best land will be required. (This is demonstrated in the Geographical

Report). This conclusion is undoubtedly supportive of the Island Plan Team's desire to restrict greenfield site development. Assuming, however, that such development does go ahead it then becomes necessary to ensure agricultural resource losses are minimised for any given scale of development. This can only be achieved by operating a type of policy based upon the (b), (c) and (d) sub-paragraphs of Policies A and B above. Thus it may, for example, be realistic and legitimate to allow the development of land comprised of Trinité soils but only where constraints exist to prevent it realising its inherent potential. We would, however, expect those circumstances to be very limited.

6.13 We are in a position to offer more specific suggestions about what might be termed administrative policies designed to deal with two specific problems. First, there is the conflict between States support for the agricultural industry and the desire on the part of individuals who benefit from that support to benefit from development values. There would appear to be a strong case for applying an administrative device to prevent the granting of planning permission on any land currently benefitting from States aid or which has so benefitted in the previous 5 years. This would prevent wastage of States aid, and would require those benefitting from the aid to make a significant committment to agriculture.

6.14 Perhaps more difficult is the problem of abandoned land. The IDC cannot admit of the possibility that abandoning land for anything other than legitimate agricultural reasons (if such exist) increases the chances of obtaining permission for development. It may, therefore, be prudent to create an administrative device which ensures that permission for development cannot be granted on abandoned land unless:

(a) it has been in that state for at least 5 years;

(b) a genuine attempt has been made in each of those 5 years to secure an agricultural tenant by publically advertising its availability at market rental.

6.15 Obviously the detail of such procedures has not been worked out fully; nor can they be by those operating outside the machinery of the States. We would recommend however, that if this sort of approach is acceptable to the States, the detail should be worked out and implemented.

6.16 This section demonstrates the options available to IDC generally and the Island Plan Team in particular when examining policies. Put simply the methodology suggested here is capable of defining how and where land should be released at any given level of restraint upon greenfield site development. In order to assist the Island Plan Team, RPS has undertaken a preliminary assessment of the agricultural characteristics of those areas identified by the Island Plan Team as being under greatest development threat. The results of this assessment are found in the Geographical Survey Report (May 1983).

7. ADMINISTRATIVE FRAMEWORK

7.1 The small size of the States civil service appears to make any reasonable form of administration of the proposed methodology and any chosen policy possible. The major constraint is almost certainly availability of time of the DAF officers. Our major recommendation is, therefore, directed towards minimising the time those officers have to spend in assembling the basic information required about current farming activities on the subject site.

7.2 This can be achieved by requiring any planning application affecting agricultural land to be accompanied by:

(a) a plan showing the application site and any land with which it is being farmed;

(b) a record of the cropping (on an area basis) on each field comprising the farm in the previous cropping year;

(c) a schedule of all buildings, machinery and labour employed on the farm;

(d) the last available set of farm accounts; if these do not correspond to the cropping year described, then a record of the corresponding cropping year;

(e) a statement of States assistance received in the previous 5 years.

7.3 The soil survey undertaken by RPS in the development pressure areas has permitted the production of a soil map for these areas. (See Geographical Report).

7.4 With the soil survey map and the documents which are required to be submitted with the application the DAF will be able to make a rapid and detailed assessment prior to making a site visit. Such a visit is obviously indispensable in order to check the soils and farm information; but if it does not need to be used to establish detailed cropping, stocking and soil information it can be much shorter and better directed.

7.5 The most important document in the dialogue between DAF and IDC is the technical reponse from the former to the latter. It is strongly recommended that DAF be required to provide their technical response under the four heads of appraisal identified in this report i.e. land quality, exploitation of potential, possibility for improving productivity and impact on the farm unit. The culmination of the technical response has to be an expression of view by DAF to IDC about the merits of the particular application.

7.6 It is important to recognise that any development of agricultural land is a loss to agriculture. DAF, therefore, to maintain a consistent and logical position, has to object to all proposed developments. Only IDC will be in a position to weigh any advantages of a proposal against the agricultural costs. It is a false logic, therefore, to create a dividing line, however defined, which separates those applications to which there will be a DAF objection from those to which there will not. What is important is to establish the strength of the DAF objection. This has to be established by assessing the technical appraisal against prevalent policies.

8. CONCLUSIONS

8.1 It cannot be expected that the RPS study can provide a completely detailed new approach to the problem. The technical suggestions put forward in this paper have to be considered in the light of the general and land use policies the Island Plan Team devise.

8.2 However, the 3 reports produced by RPS form a strong foundation for devising the fine detail of the new system. It is hoped that:

(a) the Island Plan Team can progress their work on the basis that a methodology exists, which could be brought into force, to control agricultural land release in a reasonably consistent fashion;

(b) Department of Agriculture can be assured that a more comprehensive way of assessing planning applications has been developed and could be implemented without the need to acquire additional skills and (hopefully) without a need to add to their work load;

(c) the Island Development Committee understand how, with changes to the application procedures, it can create a better input to its decision making process;

(d) both DAF and IDC have available in the form of the Geographical Survey report valuable data about the areas currently under greatest development pressure.

8.3 In order to develop and implement the proposed system further matters have to be put in hand; most importantly:

(a) a detailed technical manual has to be constructed so that all DAF officers now and in the future are working to the same procedures and adopt the same techniques;

(b) the Island Plan Team and the States have to establish which of the available development options it wishes to adopt and, as a consequence, have to construct the necessary agricultural policies;

(c) a new application procedure has to be produced along with the necessary documentation for both application and consultation between IDC and DAF.

8.4 We strongly recommend the approach laid out in this Report; without it, or something similar, there is a high probability that inconsistent decisions will be made and agricultural resources lost unnecessarily or the performance of remaining land permanently impaired.

APPENDIX 1: THE DELIMITATION OF SOIL SERIES IN JERSEY

A1.1 When mapping soils in a previously unmapped area, soil surveyors rely on experience gained in analogous geographical and geological locations to recognise soil series. A soil series is a group of soils derived from similar parent materials and with a similar sequence of horizons in the soil profile. Series may be amalgamated into soil associations, areas within which one series predominates but in which other series occur randomly; the recognition of soil associations is usually associated with reconnaissance soil mapping. Series may also be divided into soil phases dependent upon profile characteristics; for example in any one soil series there may be a shallow and a deep phase.

A1.2 The delimitation of soils in Jersey into series has been effected on the basis of the intra-group consistency, within narrow limits, of parent material, soil texture, soil depth and drainage status. The series thus selected each have the potential to support a similar range of cropping and require similar levels of management input and types of management practice. The soil series, and phases of those series, identified on Jersey are briefly described at Table 1 of this Report. Determination of a soil series may be made by studying the published gelogical map, assessing cropping pattern and by field checking of soil physical characteristics, particularly soil texture, depth and drainage status.

A1.3 One general guide to the distribution of soil series is the published, Geological Survey map of Jersey. This map should, however, be used with caution for soil mapping purposes; it is published at a small scale (1:25000) and this limits the range of information which can be shown, particularly on the following factors:

(i) textural variations within one type of drift deposit; for example, soils derived from areas mapped as loess vary in texture from sandy loam through to silt loam;

(ii) depths of drift may vary markedly; for example, within the area mapped as loess, drift depths of 26 feet down to 2 feet are recorded;

(iii) the delimitation of discrete areas of drift deposits gives no indication of the drainage status of soils derived from those deposits; for example, within the area mapped as blown sand the whole range of drainage classes occurs from excessively drained through to poorly drained. Reconnaissance soil mapping on the Island suggests that as a general guide loess and blown sand occurring at less than 40 ft. AOD are likely to have poor or imperfect soil drainage; soils derived from these deposits at altitudes of more than 40 ft. AOD are generally well or moderately well drained;

(iv) the boundaries of drift deposits are shown on the map by a line, but in practice boundaries may merge over variable distances. The integrity of mapping is likely to be less reliable at drift boundaries.

Care should be taken, therefore, in using the geological survey map alone as a guide to soil series.

A1.4 Similarly, cropping pattern on the land may only be used as a general guide to soil series since it may be as much a reflection of farmer choice as of the inherent capability of the land. Together, however, a knowledge of geology and cropping can give a good indication of the range of soil series which might be found in an area. This can only be verified by field checking of soil texture, depth, stone content and drainage status. The reminder of this Appendix sets out a checklist for soil series recognition.

A1.5 Checklist For Soil Series Recognition

1. STUDY THE PUBLISHED GEOLOGICAL MAP:

Parent Material		Other Factors	Likely Soil Series
I	Igneous rocks	(i) Slopes less than 1 in 5	Noirmont
		(ii) Slopes greater than 1 in 5	Rozel
II	Blown sand	(i) Coarse texture a. Above 40 ft. AOD b. Below 40 ft. AOD	 St. Ouen Samares
		(ii) Fine texture a. Above 40 ft. AOD b. Below 40 ft. AOD	 Trinité Samares
III	Loess/Loess head	(i) Slopes less than 1 in 5	Trinité
		(ii) Slopes greater than 1 in 5	Rozel
IV	Jersey Shale	(i) Slopes less than 1 in 5	Colombier
		(ii) Slopes greater than 1 in 5	Rozel
V	Alluvium	Low lying, often adjacent to streams	Radier

2. CHECK CROPPING PATTERN:

(i) Capable of sustained double cropping:

Likely series - Trinité
Colombier (deep phase)

(ii) Capable of sustained single cropping with double cropping in some years:

Likely series - Noirmont (deep phase);
St. Ouen (deep phase);
Samares (imperfectly drained);
Colombier (shallow phase).

(iii) Capable of sustained single cropping, double cropping rare without irrigation:

Likely series - Noirmont (shallow phase);
St. Ouen (shallow phase);
Samares (poorly drained);
Rozel.

(iv) Capable only of grazing:

Likely series - Radier.

3. CARRY OUT FIELD SURVEY OF SOILS:

NB. If slopes are greater than 1 in 5 the soil is Rozel series.

Depth (cm)	Drainage Status	Topsoil Texture	Series
90+	Well	Fine sandy or silty loam	Trinité
More than 35	Well	Fine sandy or silty loam	Colombier (deep)
Less than 35	Well	Fine sandy or silty loam	Colombier (shallow)
More than 35	Well	Sandy loam	Noirmont (deep)
Less than 35	Well	Sandy loam	Noirmont (shallow)
More than 35	Well	Sandy loam/loamy sand	St. Ouen
Less than 35	Well	Sandy loam/loamy sand	St. Ouen
More than 30	Imperfect	Sandy loam/fine sandy loam	Samares (imperfect)
Less than 30	Poor	Sandy loam/fine sandy loam	Samares (poorly)
Less than 10	Poor/ very poor	Mainly clayey textures	Radier

APPENDIX 2: THE DERIVATION OF PERFORMANCE INDICES

A2.1 The procedure and data used to produce the soil series Performance Indices is given in this Appendix. Three main cropping systems are considered in turn: early potatoes (followed by winter cauliflowers where double cropping is possible); grass production for dairy cows and outdoor tomato growing.

A2.2 Early Potatoes

Average gross margins recorded by DAF are shown in the Table below, at 1982 prices.

TABLE A2.1: GROSS MARGINS FOR EARLY POTATOES, 1978-82 AT 1982 PRICES

	1978	1979	1980	1981	1982	Average
Output per vergee						
Yield (t)	3.43	3.52	3.47	3.21	3.52	3.43
Price (£/t)	200	183	143	151	270	189
Gross output (£)	686	644	496	485	950	648
Net output [1] (£)	564	553	421	403	739	531
Variable costs per vergee						
Casual labour [3] (£)	57	57	57	57	57	57
Other [2] (£)	156	178	161	130	150	155
Total (£)	213	235	218	187	207	212
Gross Margin	351	318	206	216	532	319

Notes

1. Gross Output less commission, handling, insurance and freight.

2. Packing material, fertilisers, chemicals, contract work, sundries and seed.

3. The casual labour component of labour requirements is not recorded by DAF. However, most of the casual labour is used during the digging season, of May, June and July. By regard to hourly labour requirements for the early potato crop presented in Table 6.6 of the technical report, the following labour requirements were deemed to be fulfilled by causal workers: May, 5hrs/v; June, 20hrs/v and July, 10hrs/v, making an annual total of 35hrs/v. A crude check of the realism of his deduction was made by estimation with this assumption the causal labour useage for the whole Island's potato crop in 1981. This figure of 60,375 hours compared with an estimate of seasonal worker availability in 1981 of 1,281 seasonal workers, working say 60 eight hour days, making 76,860 hours, leaving sufficient availability for other seasonal work. Finally, the 1982 wage rate for manual farm workers of £1.62/hour was assumed to estimate a casual labour input of £57/vergee.

A2.3 Each of the soil groups have had their potential for potato production defined in terms of earliness of lifting and of yield. The description is important because as the season progresses, harvested yields rise, as prices fall. It is expected that a low yield will be achieved early in the season but a high price attained. The yields achieved will be higher later in the season but prices lower. This relationship is shown by data compiled from DAF records for early potato producers (Table A2.2):

TABLE A2.2: AVERAGE EARLY POTATO YIELDS PER HOLDING AND CORRESPONDING PRICES RECEIVED

Average Yield/ holding (£/v)	Price (£/t) 1982 (Good year)	1981 (Bad year)
2	378	157
2-2.9	275	134
3-3.9	224	134
3.9	273	121

Further data on prices are given below for 1982:

TABLE A2.3: SEASONAL EARLY POTATO PRICES, 1982

Date (Week-ending)	Price (£/t)
May 20	504 - 544
May 27	400 - 444
June 3	400 - 444
June 10	220 - 232
June 17	264 - 308
June 24	308 - 328
July 1	220 - 240
July 8	100 - 112
July 15	96 - 104

A2.4 Yields and prices for early potato production were established by regard to the above Tables and after discussion with farmers and crop inspectors. Table 2 in the text describes early potato yields achieved from different soil series and phases as High (H), Medium (M) or Low (L). High yields were assumed to be 4t/vergee; Medium, 3t/vergee; and Low, 2t/vergee.

A2.5 Between 1978 and 1982, yields only varied slightly, but there were wide fluctuations in price. 'Bad' years and 'Good' years resulted from price rather than yield variation. Two prices were therefore assumed. Earliness of lifting was described for soil series and phases in Table 2 as Very Early (VE), i.e. before May 20, or Medium Early, i.e. after May 20. Very Early prices were assumed to be £500/t in a 'good' year and £270/t in a 'bad' year. Medium Early prices were assumed to be £240/t in a 'good' year, and £150/t in a 'bad' year.

A2.6 Matrices of gross margins could now be calculated for combinations of yield and earliness shown in Table 2 for soil series and phases. The total variable costs in each of the five years, 1978-82 (Table A2.1), were similar, and the average through this time was utilised in the gross margin calculations.

TABLE A2.4: GROSS MARGINS FOR VARIOUS POTATO YIELD - EARLINESS COMBINATIONS

			Yield (t/v)		
	Good Year		Low	Medium	High
			2	3	4
	VE	500	608		
Earliness	VE/ME	320		575	
Price (£/t)	ME	240		378	575
	Bad Year		Low	Medium	High
			3	3	4
	VE	270	231		
	VE/ME	200		280	
	ME	130		108	214

A2.7 Winter Cauliflower

TABLE A2.5: GROSS MARGINS FOR WINTER CAULIFLOWER AT 1982 PRICES (1977/78 - 1981/82), COMPILED FROM DAF RECORDS OF WINTER CAULIFLOWER PRODUCERS

	1977/78	1978/79	1979/80	1980/81	1981/82	Calculated Average
Output/vergee						
Yield (heads)	1,397	857	1,866	1,710	1,562	1,477
Return hd (p)	27	30	18	18	21	23
Net Output[1](£)	366	250	326	305	321	329
Variable Costs/vergee						
Packing material(£)	82	31	68	68	63	62
Other[2] (£)	21	29	28	28	25	27
Total (£)	103	60	96	96	88	89
Gross Margin (£/vergee)	261	190	230	209	233	240

1. Commission, handling, freight and insurance costs assumed to be 3% of gross output (Estimated from 1980/81 DAF costings data).
2. Seed, fertiliser and chemicals (net of subsidy) contract work and sundries.

A2.8 Examination of DAF records of winter cauliflower producers shows that in 1980/81 the top 25 per cent of winter cauliflower yields were 25 per cent higher than the average, and the bottom 25 per cent yields were 31 per cent lower than the average. With the average price of packing material from 1977/78 to 1981/82 at 4.2 p per head, 'high' and 'low' gross margins were calculated to be £308/v and £173/v. The above table suggests that these gross margins, including the 'medium' of £240/v, fall within a 'good' year. 'Bad' year figures were assumed to be £256/v, £228/v and £144/v respectively for High, Medium and Low yields.

TABLE A2.6: GROSS MARGIN ESTIMATIONS FOR EARLY POTATO/WINTER CAULIFLOWER CROPPING SYSTEMS, 1982 PRICES (£/VERGEE)

Soil Series	Soil Phase	Early Potatoes 'Good' Year	Early Potatoes 'Bad' Year	Winter Cauliflowers 'Good' Year	Winter Cauliflowers 'Bad' Year	Cropping Gross Margins Highest	Cropping Gross Margins Lowest
Trinité	--	575	214	308	256	883	470
Colombier	Shallow	575	280	173	144	748	424
	Mod. Deep	575	214	240	200	815	414
Noirmont	Shallow	608	270	--	--	608	270
	Mod. Deep	378	108	240	200	618	308
Samares	Imperfect drainage	378	108	83[1]	83[1]	461	191
	Poor drainage	--	--	--	--	--	--
St. Ouen	Shallow	608	231	--	--	608	231
	Mod. Deep	608	231	142[2]	120[2]	752	337
Rozel	Southerly	772	337	--	--	772	--
	Northerly	772	337	--	--	--	--
Radier	--	--	--	--	--	--	--

1. Production bonuses are excluded, subsidies are included. Assuming the average Gross Margins 1978-1981 at 1982 prices for courgettes grown successfully as a catch crop in two years out of three.

2. Assuming winter cauliflowers are grown successfully in three years out of five.

3. Southerly facing Rozel soils are the earliest, and consequently high prices of £600/t and £335/t were assumed for good and bad years.

A2.9 C. Early Potato/Winter Cauliflower Cropping Systems

It is now possbile to compile a table (Table A2.6) of gross margins for early potato/winter cauliflower cropping systems, according to the earliness and yield data shown in Table 2, and the potential for double cropping shown in Table 1.

A2.10 D. Outdoor Tomatoes

Table A2.7 shows the Gross Margins achieved from outdoor tomatoe production between 1977 and 1981.

TABLE A2.7: GROSS MARGINS FOR OUTDOOR TOMATO, 1982 PRICES £/v

	1977	1978	1979	1980	1981
Output					
Yield (12lb trays) (per v)	957	826	1228	1169	732
Return per 12lb tray (£)	1.80	2.06	1.33	1.53	1.36
Gross value (£/v)	1723	1702	1633	1789	996
Variable Costs (£/v)					
Casual Labour [1]	240	240	240	240	240
Packing Materials	319	308	437	430	251
Other [2]	192	212	232	213	225
Total	751	760	909	883	716
Gross Margin (£/v)	972	942	724	906	282

1. The causal labour component of variable costs is not recorded by DAF. It was estimated by regard to the monthly labour requirements shown in Table 6.6 of the Technical Report. An annual casual labour requirement of 148 hours per vergee was assumed, at the basic manual farm worker's wage rate for 1982 of £1.62 per hour.

2. Chemicals, fertilisers, contract work, sundries and seed.

Today, outdoor tomatoes are only grown on Samares soil series in the south east corner of the Island. It was assumed that here, in a 'good' year a gross margin of £850/v was achievable, and in a 'bad' year, £300/v.

A2.11 Dairy Cows

Dairy Gross Margins are shown in the table below, on a per cow bais at 1982 prices.

TABLE A2.8: DAIRY GROSS MARGINS PER COW, AT 1982 PRICES

	1978	1979	1980	1981
Output (per cow)				
Yield (gallons)	731	732	748	761
Average price/gallon (£)	1.08	1.00	1.00	0.99
Milk output (£)	794	736	755	751
Variable Costs (£/cow)				
Concentrates	235	258	202	206
Other[1]	125	129	112	120
Total	360	387	314	326
Gross Margin (£/cow)	434	349	441	425

1. Brewers grains etc, vet, sundries, straw, forage.

From the table, it was assumed that the Gross Margin achieved in a 'good' year was £440/cow, and in a 'bad' year £350/cow.

A2.12 Not all grassland is stocked by dairy cows. In 1980 and 1981 there were about 3 followers for every 4 milking cows in the herd. The Gross Margin per follower was estimated as shown in Table A2.9.

TABLE A2.9: GROSS MARGIN PER FOLLOWER (1982)

	£
Value of heifer	330
Less value of calf	28
Output	302
Total Variable Costs	230
Gross Margin	72

A2.13 Stocking rates must be considered to convert these Gross Margins to a per vergee basis, for comparison with the crop gross margins already described. The average stocking rate in Jersey was 2.15v of grassland per GLU* in 1980, and 2.25 in 1981, an average over the two years of 2.2v/GLU. It was decided on a high stocking rate of 2.7v/GLU, and a low stocking rate of 1.7v/GLU after discussion with farmers and regard to stocking rates in the south-west of England reported in the Exeter University Farm Management handbook.

A2.14 With these stocking rates, the calculated gross margins for dairy cows and followers, and the knowledge of 3 followers for every 4 milking cows, the following matrix of gross margins per vergee of grassland was contructed.

TABLE A2.10: GROSS MARGINS PER VERGEE OF GRASSLAND (£)

		'Good' Year	'Bad' Year
Stocking rate (V/Cow)	H 1.7	186	151
	M 2.2	144	116
	L 2.7	177	95

* 1 Cow = 1 grazing livestock Unit (GLU)
1 follower = 0.7GLU

A2.15 It is now possible to tabulate gross margins according to soil series by reference to Table 2 which gives relative stocking capacities.

TABLE A2.11: DAIRY GROSS MARGINS FOR SOIL SERIES AND SOIL PHASES

Soil Series	Soil Phase	Gross Margin (£/v) 'Good' year	'Bad' year
Trinité	—	186	151
Colombier	Shallow	144	116
	Mod. deep	186	151
Noirmont	Shallow	117	95
	Mod. deep	144	116
Samares	Imperfect	144+	116+
	Poor drainage	117	95
St. Ouen	Shallow	117	95
	Mod. deep	144	116
Rozel	Southerly	—	—
	Northerly	—	—
Radier		117	95

A2.16 Performance Indices

The Gross Margins derived for early potato/winter cauliflower cropping systems, outdoor tomato growing and dairy cows can now

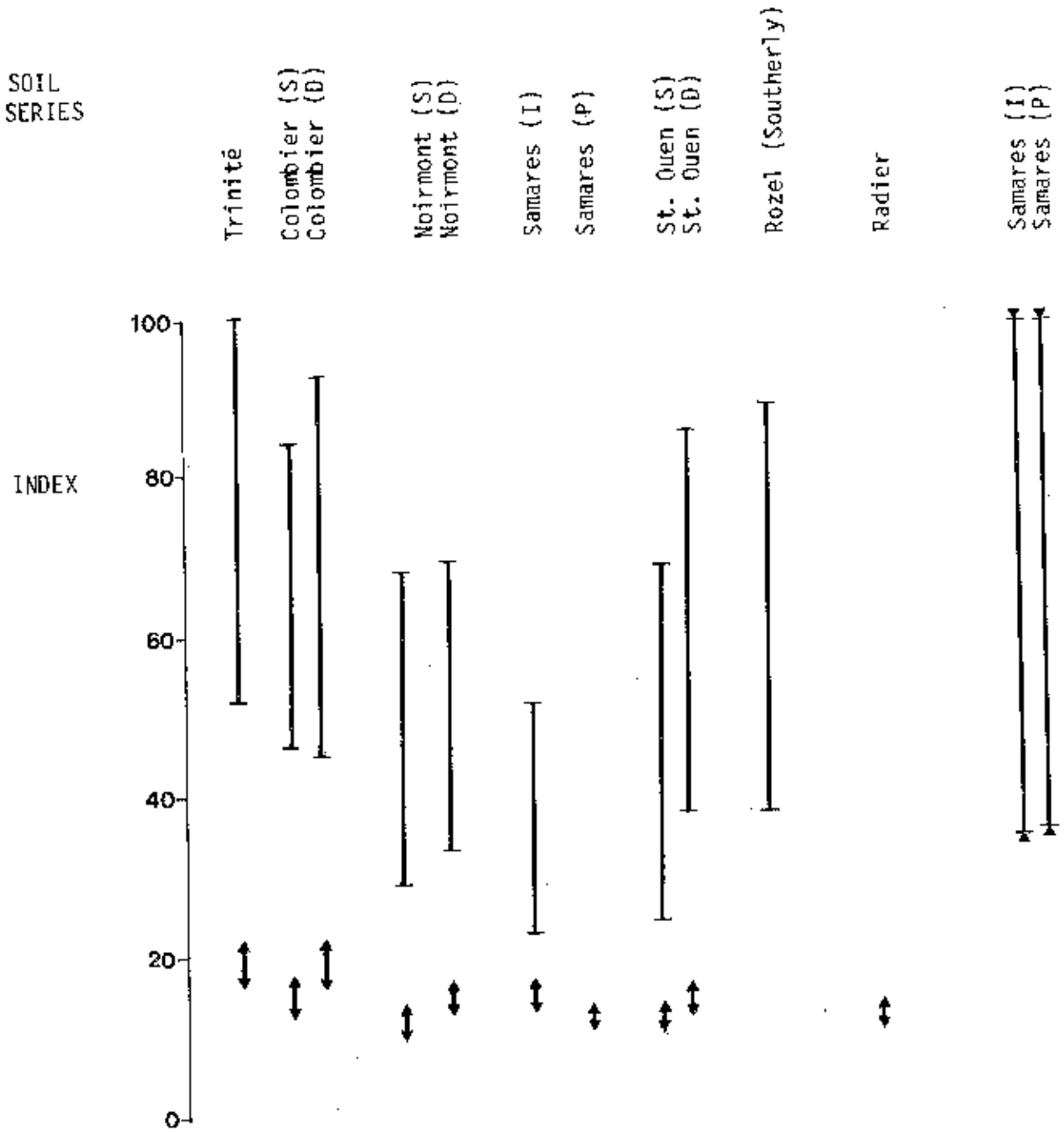
be compared for each soil series. To make the comparison clear the gross margins were first converted to be on a 0-100 scale; 100 being the highest achievable gross margin and being attained by early potato/winter cauliflower cropping on Trinité soil in a 'good' year. The Gross Margin of £883/vergee was reduced by £17/vergee, the value estimated for recent subsidies on fertiliser and chemicals in early potato/winter cauliflower production. Thus, £866/vergee became 100 on the indices scale. The 'bad' year gross margin for Trinité soil of £453/vergee, adjusted for subsidies, was therefore 52 on the indices scale. It follows that the dairy cow gross margin of £186/vergee for grazing on Trinité soil in a 'good' year was 21 on the index and the gross margin of £151/ vergee in a 'bad' year was 17 on the index. Thus, the following table could be constructed.

TABLE A2.12: PERFORMANCE INDICES

Soil Series	Soil Phase	Early potatoes/ winter cauliflowers	Dairy Cows	Outdoor Tomatoes
Trinité	--	52 - 100	17 - 21	
Colombier	Shallow	46 - 84	13 - 17	
	Mod. deep	45 - 92	17 - 21	
Noirmont	Shallow	29 - 68	11 - 14	
	Mod. deep	33 - 69	13 - 17	
Samares	Imperfect drainage	20 - 51	13 - 17	34 - 98
	Poor drainage	-	11 - 14	34 - 98
St. Ouen	Shallow	24 - 68	11 - 14	
	Mod. deep	38 - 84	13 - 17	
Rozel	Southerly	37 - 87	-	
	Northerly	-	-	
Radier	--	-	11 - 14	

A2.17 This is shown diagrammatically in Table A2.13.

TABLE 2.13: PERFORMANCE INDICES



Early Potatoes/winter cauliflower cropping
Dairy Cows
Outdoor tomatoes
(S) Shallow phase (<35cm)
(D) Moderately deep phase (>35cm)
(I) Imperfectly drained phase
(P) Poorly drained phase

APPENDIX 3: VIABILITY THRESHOLD ESTIMATION

A3.1 The standard measure of farm income is 'Net Farm Income'. This can be calculated from a farmers trading account, and includes a national rent for owned land. Certain costs are excluded, which must be met from the 'Net Farm Income'.

A3.2 First, there is the value of the farmer and his families' unpaid labour. DAF currently calculates this value by estimating the number of hours worked in a year, and multiplying by the basic manual labourers wage rate as laid down by the NFU in agreement with the TGWU. For the 1982 sample of 59 farms in the costing scheme, the average annual value per holding was £4,372, or £2,973 per person. There are some problems with arriving at this estimation. It is obviously difficult both to estimate accurately the number of hours spent working manually, and to equate the basic wage rate with the value of the farmer's and his families' manual work. Nevertheless, after deducting a value for unpaid manual labour from NFI, 'Management and Investment Income' is left. As suggested by the term, this income is a reward for the farmer's managment, and to provide for investment.

A3.3 It is perhaps unimportant for the purpose of estimating viability to know what level of income is an adquate reward for the farmer's management. Many farmers are prepared to accept a low standard of living, as long as they remain in farming. Farmers do enjoy some notional receipts which should be taken in to account. DAF allow the following in their costings scheme: £100/year for the consumption of home grown vegetables, £300/year for the private use of a car and electricity, £1,000/year for owned accommodation, and in 1982 the average value of the consumption of milk produced on dairy farms was £319/year. Utilising these figures provides a maximum value of unpaid manual labour and notional receipts of £4,692 per person. This is similar to the average basic wages of manual workers on the Island, which across all sectors was around £4,700 per year in 1982 (before tax).

A3.4 Income is also needed for investment. As these requirements will vary according to the size of the holding, it is more appropriate to calculate on a per vergee basis. The average level of finance charges for dairy, arable and arable with dairy farms was £23/vergee in 1982 (see Technical Report, Chapter 6). For glass houses, the figure was £1,412/vergee. These levels do not of course indicate optimal levels of investment, they only indicate existing requirements. Taking the average farm size in 1981 of 46 vergees, the average investment requirements across all farm types (excluding glasshouse only) was £1,058.

A3.5 Adding the value of unpaid manual labour to maximum possible notional receipts and average existing investment requirements, suggests a farm viability threshold of approximately £6,000/annum.