Research study to assess to what extent data from the Single Application Form could be used to meet the statistical requirements of the June Agricultural Census

Final Report

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Executive Summary

The **Single Application Form (SAF)** and the **June Agricultural Census (JAC)** are two different forms designed to achieve different objectives for the Scottish Government. Importantly, there is a legal requirement to complete a JAC form under the Agriculture Act 1947, whereas SAF offers a financial reward for compiling forms. Both JAC and SAF have a number of EC statistical reporting requirements.

The JAC covers the whole of the agricultural population of around 50,000 holdings, with a return rate of 70%. The SAF only covers those enterprises which have a history of agricultural support. It has an annual population of 21,000 businesses and around 20,000 are returned by those claiming a Single Farm Payment.

The aim of this study is to assess to what extent information collected from the SAF could be used to meet the statistical requirements of the JAC and how much the JAC could be streamlined or combined with the SAF as a result.

Key findings

Comparison of JAC and SAF forms (2007)

There was a direct match between most of the main **Crop** questions on the JAC and SAF forms. The JAC contains a bit more detail on the intended date of harvest for ware potatoes and has a couple additional sub-categories for stockfeeding crops.

JAC and SAF both record **Grass** areas over and under 5 years old, and JAC also enquires about the intended use for mowing or grazing. Both forms ask about **Rough Grazing**, although the JAC excludes shares in common grazing or seasonally taken in land.

JAC has separate questions on vegetables, fruits and plants grown in glasshouses and under protection, which are not separately asked for in SAF.

The JAC contains more detailed question on **Vegetables** such as Carrots and Lettuce, although SAF also has some unique categories such as Artichokes and Asparagus. Total vegetable areas should have a close match.

SAF collects more detailed categories of **Soft Fruit**, although does not separately ask about Strawberry areas which are collected separately on the JAC.

JAC collects more detailed categories of **Bulbs, Flowers and Nursery Stock**.

JAC collects more detailed information on **Pigs**, with 13 different categories by type and weight. SAF only distinguishes between indoor and outdoor pigs and also excludes unweaned piglets from the totals.

SAF only enquires about total **Poultry**, whilst JAC collects information on 11 sub-categories by different types of poultry.

There are 22 categories of **Cattle** collected on the JAC, compared to just 4 on SAF. JAC collects more detail on the age of animals, whether cows and heifers are in milk or in calf and whether other female cattle are for breeding. SAF excludes cattle aged under 6 months.

There are 13 categories of **Sheep** collected on JAC, compared with just 3 on SAF. SAF also excludes sheep aged under 6 months old.

For **Other Livestock** categories, SAF contains more detail on Deer and less on Goats and Horses. SAF excludes other livestock aged less than 6 months, which are included on the JAC.

The JAC collects detailed information on **Farm Labour**, which is not collected on SAF.

JAC and SAF both collect details on permanent and seasonally rented land. JAC collects more detail on different types of rental agreements.

Comparison of holdings and businesses

For 2007 the coverage of the JAC, by information collected through Field Data Sheets (FDS) of the SAF was 59% of holdings and 87% of area. The coverage of main holdings was greater than for minor holdings at 81% of main holdings versus 36% of minor holdings and 89% of main holding area versus 61% of minor holding area. This reflects the fact that SAF is returned more often by larger units. It is worth noting that in terms of holdings and area the coverage of JAC by SAF is improving. Staff from the Rural Payments and Inspections Directorate (RPID) have also indicated that coverage is likely to increase in 2008 since a wider range of holdings will submit SAF as part of making applications for Land Management Contracts (LMC).

In terms of coverage by farm type we see a wide divergence in the results. For example the SAF coverage by holdings ranges from 21 per cent for horticulture up to 96 per cent for dairy. These results are not unexpected given that specialist horticultural farms are largely outside of the Single Payment Scheme.

In terms of regional coverage, the results show significant regional differences (at the NUTS 4 level), which largely reflects the regional distribution of farm types.

Livestock information within JAC and SAF can only be compared at the business level, as it is not collected at the holding level in SAF. In 2007, 65% of JAC holdings were resolved to 28,365 businesses, with a Business Reference Number (BRN). The SAF coverage of these was 69% of businesses and 87% of area. However, compared with the whole JAC population, the coverage of area was 78%.

Comparison of data for holdings and businesses common to both the JAC and SAF datasets (2007)

For **Crops** the range in aggregate differences between the two data sets was from 1% (Spring Barley and Total Cereals) to 362% (Mixed Grains). The larger differences tend to be associated with items with broader definitions e.g. Mixed Grains or for items with smaller areas e.g. Lupins where one or two individual differences can have a big impact overall. For a selection of main crops, aggregate differences showed JAC values greater than SAF for Winter Barley (5%), total Oats (6%), total Oilseed Rape (5%) and total Potatoes (15%) and SAF greater than JAC for Wheat (4%).

The distribution of individual differences for Wheat, Winter Barley, Spring Barley and Oilseed Rape showed that between 37%-42% of main holdings had values within +/-1% on JAC and SAF and between 51%-54% had values within +/-5%. For Seed and Ware Potatoes, there was a sizeable proportion (32%-36%) of holdings showing a positive value on JAC and a zero value on SAF.

The analysis of distributions can be used to identify systematic differences between JAC and SAF, which could be due to factors such as differences in definitions. Another potential difference could be due to estimated values within the JAC dataset, for holdings which have not returned a JAC form. It is recommended that further analysis is undertaken on JAC estimated values.

Analysis of total **Grass**, shows an aggregate total on SAF 12% (or 134,000 ha) greater than JAC. The distribution of differences shows that 18% of main holdings had values within +/-1% on JAC and SAF, 10% had a SAF value more than 80% greater than JAC and 8% of main holdings had a positive SAF value with zero on JAC. Conversely the aggregate total for **Rough Grazing** was 11% (or 323,000 ha) greater on JAC than SAF, with 25% of main holdings showing a positive value on JAC and a zero value on SAF. These differences probably reflects the different way that common grazing and seasonal renting of pastures is treated between the two datasets.

The JAC showed an aggregate value for total **Vegetables** 34% greater than SAF, with 43% of main holdings showing a positive value on JAC and a zero on SAF and 18% of main holdings with JAC and SAF values within +/-1%.

The aggregate difference for total **Soft Fruit** was 4%, with 18% of main holdings showing a value of +/-1% between JAC and SAF and 35% showing a positive value on JAC and a zero value on SAF.

There are definitional issues between JAC and SAF in the recording of total **Bulbs, Flowers and Nursery Stock**, with 96% of main holdings reporting a positive value on SAF and a zero value on JAC.

For the main Livestock categories, total **Sheep** shows the greatest aggregate difference between JAC and SAF of 35% (or 2.5 million). There is a clear peak in the distribution of individual differences, with 41% of JAC businesses showing a value 40%-60% greater than SAF. There are also 14% of businesses with a positive value of SAF and a zero value on JAC.

There pattern is similar for total **Cattle**, with the JAC aggregate total 12% (or 213,000) greater than SAF and a peak of 26% of businesses showing a value of 20%-40% greater than SAF. There are also 7% of businesses with a positive value of SAF and a zero value on JAC.

The difference in the livestock reference period of March in SAF and June in JAC is likely to be the cause of most of these differences for Sheep and Cattle. In addition, SAF does not collect information on Sheep and Cattle aged under 6 months old.

For total **Poultry**, SAF shows an aggregate total 9% (or 261,000) greater than JAC. Although 21% of businesses have a JAC and SAF value within +/-1%, there are 24% of businesses with a positive SAF value and corresponding zero value on JAC.

For total **Pigs**, the aggregated JAC and SAF results are almost identical, with a difference of 0.2% (or 900), however, just 16% of businesses have identical values of +/-1%. Where there is a positive value on both datasets the JAC one tends to be higher, but this is countered by 30% of businesses showing a positive SAF value and a corresponding zero value on JAC. Pig figures for SAF exclude any unweaned piglets.

Examining changes over time (between 2005 and 2007), for crops there is a remarkable degree of consistency in the nature of the differences between JAC and SAF. The year-to-year consistency is maintained for the Grass, hay, straw and silage classes. For livestock Items there is consistency for simple overall categories e.g, Total Pigs, but for classes with more complex or compound definitions there are significant “jumps” in the data series e.g. Beef cows and Heifers.

Comparison of overall totals from JAC and SAF datasets (2007)

The comparison of overall totals from JAC and SAF datasets encompass difference in holdings and businesses common to both JAC and SAF as described above, but it also encompasses differences due to population coverage.

The comparison between JAC and SAF showed that there were 5,084 main holdings and 16,117 minor holdings covered by JAC but not on SAF. Conversely there were 1,055 holdings on SAF which were not on JAC. The following summary quantifies the net effect of additional JAC and SAF population coverage.

For most **Crops** the impact of additional population coverage was relatively small. For a selection of main crops the difference between JAC and SAF increased by 1% for Wheat, 1% for Winter Barley, 1.4% for Spring Barley, 2.5% for total Oats, 0.7% for total Oilseed Rape and 1.5% for total Potatoes. Larger differences were shown for crops with smaller areas such as Linseed (36%).

Much greater differences were observed for grass and grazing items. The JAC **Rough Grazing** estimate increased over SAF by 5.3% (or 521,000 ha) and total **Grass** increased by 5.9% (or 73,000 ha). This reflects the fact that there are holdings in JAC that are not returning SAF since they have not to date claimed “agricultural” payments, e.g. sporting estates. This is likely to change, however, with SAF used for the administration of LMC and Rural Development Programme (RDP) measures.

The impact of additional population coverage was small for total **Vegetables**, with the JAC estimate increasing over SAF by 2.5%. The difference for total **Soft Fruit** was 8.6%.

For livestock, the greatest impact was for total **Poultry**, where JAC additional coverage increased by 46.8% (or 2.6 million). There was also a substantial increase for total **Pigs** of 11.2% (or 50,000). This is not surprising, given that some businesses specialising in poultry and pig production are not eligible to claim for Single Farm Payments (SFPs).

There was relatively small impact of additional population coverage for total **Cattle** (0.9%) and total **Sheep** (1.5%), suggesting that almost all cattle and sheep producers are claiming SFPs.

Integration Issues between JAC and SAF

Having extensively analysed the two datasets the final part of the project comprised a workshop where those involved with the JAC and SAF highlighted their views on key issues surrounding the future possible relationship between the two.

It was recognised that, there is a large degree of overlap, as around 89% of areas are common between datasets. However, the SAF may provide more accuracy, due to its underlying payment and inspection requirements. Hence, a strength would be complementarity between the two data sets, where items missing from one data set could be provided by the other dataset. A similar strength is the willingness to share data among the staff involved in the two exercises, although it was pointed out that currently JAC data can only be used for statistical purposes.

Issues that would need overcoming included:

- reconciling the definitions of '*Business*', *'Holdings'* and other entities within the SAF and JAC.
- the mismatch in dates on which the data are captured, especially as the SAF and JAC are collected on separate dates and numbers, especially those for livestock, may have changed in-between time.
- possible technical difficulties in exchanging data between the two data models through a lack of common identifiers, i.e. BRNS (Business Reference Numbers).
- the fact that SAF only represents the land on which payment claims are being made and that the SAF population changes on a yearly basis, which would have an impact on any analysis of change within the industry.
- need to rationalise activity codes if the two datasets were merged and possibility of losing detail from the JAC
- SAF and JAC are governed by separate legislation, which may present problems when merging the two.
- The need to ensure that payment dates were met as there would be political consequences if these were not met.

If the above challenges could be overcome there was a view that could lead to some opportunities:

- increased efficiency, as it may lead to reductions in the number of activity codes, as well as farmers only having to complete one form.
- efficiencies from streamlining the processing by the Scottish Government, which would lead to possible cost savings and creating more freedom for staff to take on additional tasks.
- could lead to savings on IT support if there is a move to one dataset. In addition, comparisons with SAF should allow evaluation and improvement of the JAC imputation process.

It was felt that future developments might also offer some opportunities. These include:

- use of web based system as for the SRDP could offer more flexibility and allow more on-line checking of data reducing processing costs.
- The rest of the UK are using BCMS data for cattle instead of the census which has been accepted by the EU. If Scotland could follow this course then this would reduce the amount of information required from the JAC.
- There is an opportunity to simply streamline the SAF and move away from numerous codes measuring specific activities, e.g. no collection of spring barley, just a general set of crop codes.

From the discussion four potential options were considered

1) No change;
2) Reduction in the quantity of information collected within the SAF, which is something can be done easily and presented as a reduction in bureaucracy and may be welcomed by farmers;
3) Reduction in the quantity of information collected within the JAC, which might be possible by using alternative data sources and statistical modelling to meet EC statistical requirements
4) Combining the two forms

It was argued by some at the workshop that items 1 and 4 may not have majority support, but there is an appetite for change and improvement. It was felt that 2 and 3, where the SAF or JAC are simplified, respectively were more possible. The preference for simplification over merger seemed to be driven by the need to focus on securing payment deadlines for farmers and not diverting resources to create awareness of how to deal with the merged forms. However, others argued, that a ‘mock-up’ form should be made to fully appreciate the implications of merging the two and tested on stakeholders.

Introduction

The aim of this study was to assess to what extent information collected from the Single Application Form (SAF) could be used to meet the statistical requirements of the June Agricultural Census (JAC) and how much the JAC could be streamlined or combined with the SAF as a result.

To achieve this aim there were five objectives set for this study namely:

(i) To describe the commonality and differences between the JAC and SAF both in terms of concepts and practical delivery.

(ii) To quantify the level of duplication in data collection between the JAC and SAF.

(iii) To describe the difference in holding/business populations between those submitting SAFs and those contained within the scope of JAC.

(iv) To compare data from the JAC and SAF datasets at both the aggregated and individual unit level and to assess the suitability of SAF data for statistical purposes.

(v) To identify current and potential developments related to the JAC and SAF which could have a bearing on closer integration of these two data collections.

Methods

Objective (i) was achieved by a detailed review of all available documentation concerning the JAC and SAF and in-depth discussion with key members of staff responsible for the SAF and JAC.

Objective (ii) was achieved through assessing both *how* the JAC and SAF are collected (i.e. the design decisions on which data are collected) and the *outcomes* (i.e. which data were available).

Objective (iii) was achieved by merging the JAC and SAF datasets at the unit level for 2005, 2006 and 2007. The relationships between holdings on the JAC register (both main and minor holdings) and holdings/businesses on the SAF dataset for each year were then analysed. Assessing the actual impact of the differences between the two datasets was complex, due to the fact that the two have to be compared at a number of levels. The distinction between holdings and businesses is a key issue in constraining the comparisons that can be made between JAC questions and SAF items. Using the SAF field data sheets as building blocks it is possible to compare results at holding level between the SAF (SAF(FDS) and the JAC (JAC-all). For livestock questions the situation is more complex. JAC records livestock numbers at the holding level, but SAF returns for livestock numbers need only be made at the business level which can comprise multiple holdings. This means that for comparisons to be made between the SAF livestock numbers (referred to as SAF-L) and JAC for livestock items, the JAC data need to be grouped into businesses (referred to as JAC-b).

Objective (iv) was achieved by considering for every possible item or group of items on the JAC, the extent that results match with those on the SAF dataset at the unit level and at the aggregate level, for 2005, 2006 and 2007. Two approaches were used. One involved an individual comparison on a holding-by-holding or business-by-business basis of the JAC and SAF values for each comparable Item (CI)– these individual comparisons are then aggregated to give overall national figures and breakdowns by size, Farm Type and NUTS4 region. This *compare-then-aggregate* (CA) strategy can consider only those holdings or businesses common to both datasets. In contrast the second approach considers the two dataset separately. For the comparable items in each dataset aggregated values are calculated for the national, size, Farm Type and NUTS4 regional groupings. These aggregated values are then compared. This is the *aggregate-then-compare* (AC) strategy.

Objective (v) was achieved through using the outputs from Objectives (i) to (iv) to form the basis of the discussion concerning current, planned and future developments of JAC-SAF in a structured workshop with key members of the staff. These discussions identified both the opportunities for and potential constraints on the closer integration of the two datasets.

The report is structured as follows:

Section 1 describes the JAC and SAF in terms of their commonality and major operational and administrative differences.

Section 2 outlines both the practical and operational issues on the use of the SAF

Sections 3 & 4 provides an extensive analysis of the SAF and JAC data for the period 2005 to 2007, focusing at both holding/business levels, as well as the individual and aggregated level.

Section 5 reports on the workshop conducted with staff to understand the impact and issues for merging the SAF and the JAC.
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1.0 Description of the commonality and differences between JAC and SAF in terms of underlying requirements

This section meets the first part of objective 1, namely to describe the commonality and differences between the JAC and the SAF, in terms of underlying requirements. It compares and contrasts the underlying requirements of the single application form (SAF) and the June agricultural census (JAC). In order to obtain required information both primary and secondary data were collected. Interviews were conducted with RERAD staff over late December and early January, which included detailed conversations with key members of both the JAC and SAF staff[1]. To complement this a number of Government documents were examined, which included background reports, EU regulatory requirements and the actual forms themselves.

1.1 Regulations and Coverage

Relevant regulations

Both the SAF and the JAC have a number of EC statistical reporting requirements. These are outlined below.

EU Directive	Requirements	Indicators
Regulation (EC) No 138/2004	June Survey (and related surveys) used to compile various outputs and input items for the aggregate agricultural account.	Aggregate Agricultural Account
Council Regulation 837/90	Area under cultivation provisional data by 1 October, finals by 1st April	Cereals Area
Council Regulation 959/93	Area under cultivation-provisional 1st October, finals 1st April	Non-Cereal Crops
Council Directive 93/25	Numbers (3 data items) by 15th May following year	Goats
Commission Decision 98/337/EC	Data on a large statistical sample of Scotland holdings on a wide range of census variables.	EC Farm Structure Survey at agricultural holding level
Council Directive 93/23/EEC	Pig numbers collected twice a year	Pigs
Council Directive 93/25	Sheep Numbers on 1st December	Sheep
Council Directive 93/24	Cattle numbers one day in May/June and one day in December	Cattle
Council Regulation 837/90	Cereal Production - initial estimates by 15th November, provisional data by 1st February and final data by 1st October	Cereals Production
Directive 76/625	Orchard Fruits every 5th year from 1987.	Fruit Trees

[1] We are grateful to the following for providing us with information regarding the census and SAF; Dave Rowley, Tom Sharp Alan Fraser, Brain Endicott, Andy Reid and Valerie Blackie.

For the SAF, a number of EU regulations apply to the single application claims and cross compliance checking. Commission Regulations (EC) No. 795/2004 and 796/2004 detail rules for the implementation of the single payment scheme provided for in Council Regulation (EC) No. 1782/2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers, as amended by Commission Regulation (EC) No. 1974/2004.

Commission Regulation (EC) No. 796/2004 lay down detailed rules for the implementation of cross-compliance, modulation and the integrated administration and control system provided for in Council Regulation (EC) No. 1782/2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers. Within Scotland, these are both instituted within the Agricultural Subsidies (Appeals) (Scotland) Amendment Regulations 2005. However, within these legislation there is little identification of specific data. Article 12 of Commission Regulation (EC) No. 796/2004 states the following:-

'The single application shall contain all information necessary to establish eligibility for the aid, in particular:

> *(a) the identity of the farmer;*
> *(b) the aid scheme or schemes concerned;*
> *(c) the identification of the payment entitlements in accordance with the identification and registration system provided for in Article 7 for the purposes of the single payment scheme, broken down by set-aside entitlements and other entitlements;*
> *(d) particulars permitting identification of all agricultural parcels on the holding, their area expressed in hectares to two decimal places, their location and, where applicable, their use and whether the agricultural parcel is irrigated;'*

The SAF is also the current mechanism for validating areas for payment under LFASS and LMCMS and thus regulations 1257/1999, 1698/2005, 1974/2006 and 1975/2006 also apply.

Geographic Coverage

The SAF has an annual population of 21,000 and around 20,000 'businesses' (see 1.2.1 for main definitional differences between these and JAC holdings) are returned by those claiming a subsidy. The remaining 1,000 business are either entering the scheme in their first year to simply register their land, or planning for other schemes. It does not offer full coverage of the Scottish agricultural industry as, by its nature, it only covers those enterprises which have a history of agricultural support. Consequently, the main activities excluded from the SAF form are both pigs, poultry and horticultural activities (however, changes to the eligibility rules for SFPS effective from the 2008 will now allow certain horticultural activities to be declared on the SAF).

There is an on-line facility to fill in the SAF form, around 3,600 return through the web. The remainder are returned to area offices. Farmers are provided with a part-filled document, reflecting activities in the previous period relating to field data codes and forage

areas. Farmers have to complete the form indicating any withdrawal from activities, or changes in activity levels of each enterprise.

The JAC covers the whole of the agricultural population of around 50,000, but has a return rate of 70%. This equates to about 25,000 returns each year, as only a third of the minor holdings are sampled each year. The remaining 30% of main holdings and minor holdings not surveyed have to be imputed (see processes below).

The JAC covers both a major and minor holdings (defined below). The minor holdings census is run every year but takes annual samples of a third of those registered as minor holdings. In addition the December Census is also conducted. The December census is a survey, and a questionnaire is sent to a sample of around 55% of main holdings (approximately 15,000). Responses are usually received from about 10,000 holdings. At present Minor holdings are not surveyed in December.

The December Census asks exactly the same questions for cattle, pigs, poultry, occupiers and spouses as those which are asked in June, and different questions on sheep, labour, cropping and grassland areas. In addition, there are two sets of questions on machinery and equipment which are asked in alternate years.

1.2. Unit descriptions

Definitions of Holding and Business

The JAC has a 'holding' as its smallest spatial unit. Holdings are classified as being either main holdings or minor holdings depending on their physical and economic size. A holding is classified as minor if ALL the following criteria apply:

1. The area of the holding is less than 1000 hectares
2. The net value of the crops and livestock is less than one and two-thirds European Size Units **OR** the area of land is less than one hectare
3. The holder does not farm another holding
4. The holding is not a large poultry unit (200 or more poultry)
5. There is no regular full-time farmer
6. The holding does not grow any hardy nursery stock or glasshouse crops
7. The holding has fewer than 100 farmed deer

All remaining holdings are classified as main holdings. Furthermore the JAC can identify a number of holdings, grouped according to owner.

SAF holdings (>0.3 ha) can be divided down to a business unit level, which are then surveyed. A SAF form is completed per business unit level, which can be attributed to a component holding. These business units, as defined by the SAF, are '*managed as a separate business, according to certain rules (legal status of the businesses, how far operations are run separately each day in practice, whether there are separate farm plans and accounts, the independence of decision-making between the separate farms and where the overall economic control of the businesses rests)*'.

Definitions: Areas

Within SAF all common grazing is stated by the producers and is then shared out afterwards. There are around 900 commons claimed within the SAF and around 4,500 who claim common grazing.

The census explicitly asks that common grazing not be included within the assessment of rough grazing. No other reference is made to common grazing.

Definitions: Livestock

Definitions between SAF and JAC tend to differ. SAF asks for the number of livestock on a holding, whereas the JAC asks for livestock owned or hired. This would apply to the recipient's farm or elsewhere. Consequently, JAC tends to capture more livestock than SAF businesses.

However, a problem emerges with animal numbers collected on land within the JAC. Seasonal tenants with no permanent holding of their own may have livestock grazing seasonally on land owned by others. However, their livestock numbers are not captured, as the seasonal tenant does not receive a JAC form in their own right, and therefore has nowhere to record the figures.

1.3 Reporting Periods and Deadlines

Both the census and SAF follow a set of timing deadlines, which allows efficient processing throughout the year. The census has specific dates in which to report, whereas the SAF has flexible timings. Nevertheless, the major timing that has to be considered is to maxmise payment of subsidy on 1st December (which is the first day of the payment window which stretches to 30th June the next year) and reporting cross-compliance breaches (which have to be finalised by 31st December). Hence, return forms have to be processed in time to organise appropriate inspections. At present, the final date for submission is 15th May and inspectors can be on the field within 6 weeks.

The following outlines the scheduling of tasks for the Census and the SAF.

Census

i. Pre-administration: At the beginning of early spring a re-classification of minor and main holdings occurs, this is not just one-way. A list of long-term non-respondents to the census are sent a letter before the actual census form is sent, to explain the purpose of the census and to encourage participation. Minor holdings are selected for the year. Around a third of all minor holdings are surveyed each year.

   An internal consultation of the questions on the census is conducted, with bids for new questions considered as well as the removal of questions no longer required.

ii. Administration

   The finalised census form is sent to the printers and error checked by staff. The census is then sent to recipients. A return rate of around 70% is usually achieved for

both the major and minor holdings census, which equates to around 25,000 holdings.

iii. Processing of the Census

The returned census forms are scanned throughout the return period. Quality assurance checks are conducted on returns for each holding and include: (i) logic checks for internal consistency of results on the form, (ii) checks on data above pre-defined thresholds, (iii) comparisons with previous returns to identify any large changes in activity, (iv) checks on total holding areas against other corporate data sources. Returns which fail these checks are queried with the holdings.

Data for non-respondents are then imputed in order to generate overall results as well as to create a comprehensive database covering all holdings, which is used for analytical purposes. Generally imputation is stratified by size, type and geographic location of holdings. Imputation is taken item by item. Effectively, all non-zero values in year t are taken as a ratio of their non-zero values in year t-1. In some cases, information from IACS is used to complete census data for non-responders, but only where there is a direct holding match on IACS.

Further quality assurance is carried out on aggregated census results at the national and sub-national level. This includes an investigation of un-expected trends, which can lead to further queries being raised with individual holdings. Once the quality assurance has been completed for the main holdings, estimates for minor holdings are added to produce results

Provisional results are published in September to meet one of the EC regulation deadlines. These are be based on main holding forms processed by the start of September. Final results are published in October, which are based on all main forms being processed. In each case, estimates for minor holdings are included based on results from the previous year.

iv. Minor Holdings

After the main holdings census has closed, then the processing of minor holdings census is started. There is limited quality assurance of the minor census forms, which reflects the lower level of detail included on the form There is a similar level of response as for main holdings (around 70%). Results from the minor holdings will be used to update previous estimates and are included in subsequent publications.

SAF

i. Pre-administration
Development of SAF 2008 begins in September, October 2007
Meeting of those with a vested interest in SAF
Base form and field data sheets sent to printers in November
Explanatory booklets mid January
Cut-off for amendments is by 19th January

ii. Administration
Forms signed off, printed and sent off 15th March

Producers to declare all land they hold on the 15th May
Final Date is 15th May late claim periods 9th June (25 days) and incur late claim penalties. After that it is invalid.

Turnaround (past) information is sent to the producer and populated on screen for web based work. Checks on fields, e.g. whether its LFA gross areas etc.

iii. Processing

IT programs replicate the form question by question. All data is captured and acknowledgement sent to the producer. A certain level of validation is undertaken with the data and 'Special Checks' conducted which highlight issues that need to be checked, e.g. relating to the existence of contracts for non-food or energy crop production.

The processing staff estimate that around 60/70% of forms go through 'clean'. The remainder have to be validated. Some errors could have emerged from keying in at regional offices. Checking is also against corporate database, e.g. checking against farm records. The producer may also be contacted for clarification of issues and some deficient information may have to be checked by visits to the farm. On the electronic forms, validation is usually at the producer end and then an acknowledgement is sent to the producer.

Timeline of JAC and SAF process

Date	JAC Process	JAC Regulations	SAF Process	
Jan			Forms are signed off for printing in mid-January	
Feb		Council Regulation 837/90: Cereal Production: provisional data by 1st February		
Mar	Re-classification of main and minor holdings.		Forms are sent off to producers in mid-march	
April		Council Regulation 837/90 & 959/93: Area under cultivation finals by 1st April		
May	At the end of May, questionnaires are sent out to farmers on holdings asking for detailed information as at 2 June on agricultural activity on their holdings.	Council Directive 93/25: Goat Numbers by 15th May following year Council Directive 93/24: Cattle numbers one day in May/June.	15 May - Last day for SEERAD to receive SAF to avoid a late claim reduction.	Commission Regulation (EC) No. 796/2004 The single application shall be submitted by a date to be fixed by the Member States which shall not be later than 15 May.
June	Various processing tasks: the scanning and scrutinising of forms, sending the forms off for punching, loading punched information into the AGS System and resolving work items	Regulation (EC) No 138/2004: June Survey (and related surveys) used to compile various outputs and input items for the aggregate agricultural account	9 June 2007 Last day for SEERAD to receive SAF	
July			Processing of forms Cross-Compliance Checking Begins	
August				
September	Minor Holdings processed and analysed			
October		Council Regulation 837/90 & 959/93: Area under cultivation provisional data by 1 October.		
November		Council Regulation 837/90: Cereal Production - initial estimates by 15th November.	First Proofs of SAF from sent to printers	
December		Council Directive 93/25: Sheep Numbers on 1st December. Council Directive 93/24: Cattle numbers one day in December	First proofs of Explanatory booklet sent to printers	

1.4 Required Outputs

Reporting of the Census

There is an EC requirement for provisional information on pig numbers in August. UK data is collated by Defra. Provisional census results are published in September followed final results in October, again to meet various EC deadlines.
Census data and information is also used in a number of other publications, namely:-

i. Scottish Abstract of Statistics (published in February)

   This publication contains comprehensive trend information from the June Census from 1982.

ii. Summary Sheets of Census (published in March)

   The totals, and numbers of items aggregated along 14 regions (based on Unitary Authorities)

iii. Economic Report on Scottish Agriculture

   The ERSA collects data from a number of sources ((Farm Accounts Survey (FAS) , June Census/ Total Income From Farming (TIFF)/December Census). Predominantly, it shows comparisons with the UK and offers summaries of outputs such as size, region, area, type

iv. EUROSTAT Farm Structure Survey (required every 2-3 years)

   Data from the Census is combined with other information at the holding level to produce a sample of holding records which are anonymised before being sent to the EC. Every EU Member State is required to participate in this survey. The resulting EU database provides a powerful tool for the EC to analyse structures and trends in agriculture to inform CAP policy.

   Notably, the next EU Farm Structure Survey will be conducted in 2010. The main feature of the 2010 survey is that current proposals include a new Survey of Agricultural Production Methods (SAMP) and increased sample sizes.

Aside from reporting, the Census also has a number of key uses, most significantly it is the main source of statistical information about the agricultural industry. Importantly, in terms of an emergency such as a disease outbreak, the census provides a basis for identifying farm activities, in particular those holding livestock.

Reporting of the Single Application Form

i. Publication of payments appear on website by business area office, SFP scheme is listed along with other payment schemes. This is voluntary and was initiated by the past administration.

ii. The Report on the Administration of CAP, which emerged from 2004 onwards and is a non-compulsory requirement, outlines the public cost of CAP payments schemes

and declares the cost per pound of subsidy to administer. This is divided into pillar 1 and pillar 2 payments.

iii. Publication of beneficiary date is now compulsory under recently adopted amendments to 1290/2005 (to be in place by end Sept 2008). That now requires publication of pillar 1 and 2 payments including first name and surname where the payment is made to an individual along with details of municipality – postcode and postal town.

iv. Ad-hoc requests from Ministers, Press etc.

v. EUROSTAT (annual publication)
Feed and field register
Permanent pasture ratio
Protein and energy crops (changes)

Quality Assurance

Within the JAC a number of quality controls are imposed on the collection of the data. Those protocols outlined in the process section highlight a number of checking levels. In particular the census has historic trend data to compare a holding's declared activities with those of previous years. Various measures are in place for confirming any large deviation in declare activity from one year to the next. In addition, the JAC follows the National Statistics Code of Practice and Release Practice Protocol[2]. These in turn are influenced by QA protocols defined at the EC level for quality assurance mechanisms for collecting and disseminating agricultural statistics. Accordingly, holding level data submitted to the EC from the Farm Structure Survey goes through a set of quality assurance checks, which Member States need to resolve before final submission of data.

Cross-compliance checking on farms is a powerful form of QA for the SAF. In addition to this there are five levels of audit coverage for administration of quality assurance:-

Every year:
i. Internal Auditors
ii. External certification work on Scottish Government accounts
iii. Co-ordinating body RPA – external audit

Cyclical:
iv. EC Directorate auditor
v. EURO Commission monitors.

[2] http://www.statistics.gov.uk/about_ns/cop/downloads/StatementRD.pdf

2.0 Description of practical and operational issues which could have a bearing on the use of SAF data for statistical purposes.

This section meets objective i.ii to describe any practical or operational issues which could have a bearing on the use of the SAF data for statistical purposes. It outlines the practical or operational issues that emerge when considering merging the June agricultural census (JAC) and the single application form (SAF).

In order to obtain the required information both primary and secondary data were collected. Interviews were conducted with RERAD staff over late December and early January, which included detailed conversations with key members of both the JAC and SAF staff.

Data

As a first step towards understanding the practicalities of using the SAF to meet the statistical requirements of the JAC, it is useful to consider in more detail the similarity of the information currently collected through the JAC and SAF processes. The meta-data analysis, reported in the appendix, outlines the areas of overlap and gaps between the two. It is clear from this analysis, and the discussion in section 1 that there are some significant differences in coverage (both in terms of number of holdings and items covered) and definitions which are obvious practical issues that have to be overcome. The impact of these differences will be quantified later in the projects. However, given that this preliminary analysis highlights that the scope and nature of the SAF would need to change, the following examines some of the operational and practical issues that might be associated with modifying the SAF.

Timing

The discussion in Section 1 highlighted that differences in the timings of information gathering could potentially be an important issue. For example, the SAF collects data on livestock numbers for the beginning of March, whereas the EU requires information for one day in May/June and one day in December. Changes of timing would have to be considered and agreed with the EU to allow the two to merge. Consequently, it would have to be shown that a change in dates for collection of information will not have a large impact on results. These timings were illustrated in Section 1.

Process Issues

From discussion, it is clear that there is potential to amend the SAF. However, a number of factors need to be taken into account. First, merging of the JAC and SAF may lead to collection of more data than currently required on the SAF. From a SAF point of view, the increase in information would lead to more checks, this may delay the process of all inspections, in particular cross compliance checking and, ultimately, may delay payment. Though there is a payment window, most farmers expect and are paid on 1st December. The SAF is responsible for administering around £420 million to Scottish farmers, with an additional £80 million for other schemes (this may increase to £120 million if other

schemes are included within the SAF). Hence, if these payments are delayed then the Minister responsible for agriculture may have to face criticism.

The relationships between a business and a holding means that the farmer may be burdened with increased administration. This is due to the fact that business level data are collected at holding level. Thus a number of similar forms may have to be added to the major forms. Third, from a data collection point of view, holdings may be split up between a number of parties. Consequently, it may be the case that only part of the holding would qualify as IACS businesses. Farmers would have to be statutorily obliged to report details.

Variable Codes

An issue emerges with the number and definitions of codes used within both sources (as highlighted in the meta-data analysis in the Appendix). The SAF and JAC use a large number of farm codes and some merging and disposal of redundant codes would have to be considered. From the respondent's side, the number of codes may be confusing and time consuming. Consequently, this would require a fundamental review in co-operation with JAC and SAF staff, but may also include consultation with industry.

An implication of this is the loss of the time series of data from the JAC, which has run fairly constantly for over a 100 years. Consequently, if this were adopted there may be some loss of data, or a re-baselining of some data items as definitions may have changed.

Role of Other Data Sources

The British Cattle Movement Service has been adopted by the rest of the UK (after agreement with the EU) as the prime data source for satisfying the census requirements for cattle numbers and it is proposed to do the same in Scotland (once issues relating to differences in the categories uses for classifying animals are resolved). Consequently, some of the livestock information required from the Census can be covered by the BCMS. This does have implications for merging SAF and JAC because it reduces the burden of information required.

The BCMS data does highlight a further issue and that relates to the differences between the ownership of the holding and ownership of the livestock. BCMS records are interested in the keepers of cattle whereas census data relate to the holdings. These do not necessarily match and consistency in definition needs to be achieved in the merger of any of the data sources discussed as else there is a risk of either double counting numbers of livestock or not counting them at all.

Whilst BCMS covers cattle, for sheep there is also potential for rationalisation by considering how data from the Sheep and Goats Inventory could be used or replaced thus reducing the burden of form filling.

This does again though raise the issue of the relationship between the date of the SAF and the required census date (December). Though as with the JAC/SAF timing discussion, there would appear to be some flexibility on the dates.

Policy Issues

Although there is ongoing discussion about changing the level of detail of information required by the EU from the Census, it is largely immune from changes in policy. This is certainly not the case for the SAF, with the 2003 reforms highlighting how major changes in information requirements can occur. The new SRDP (when implemented) is a further case in point as it is likely that their will be new participants, in particular forestry enterprises and sporting estates. If they decide to claim then they will be added to the SAF client list. Some items, for example, forest area, may be affected. There is obviously a question of how this fits in with the census, as the census is driven by definitions of an agricultural holding. Consequently, it has no interest in forestry or other non-agricultural holdings. This highlights a general issue in that any possible solution in terms of merging them has to be flexible enough to cope with changes into the future.

The European Commission also plans a health check in 2008. Proposals under discussion include the movement of payments to a flat rate area basis and cap large payments. Hence large payees may seek to split their businesses, as was the case in the US when payments per farm were capped, impacting on the structure of the business. In addition, in the future, further emphasis may be placed on environmental, rather than agricultural production, payments leading to fundamental changes or eradication of the SAF.

Cultural Change within the Scottish Government

A past study on merging data collection sources highlighted an issue of cultural change in terms of merging the activities of two distinct departments/groups. Raising this issue with both JAC and SAF staff found that the organisation would appear to be amenable to change, particularly if it released staff time to undertake development work that has been neglected due to the pressures involved in simply maintaining the current system.

Visual Design and Consultation of Change with Clients

As noted above the SAF is subject to change compared with census forms which have remained largely unchanged for over 100 years. Therefore, consideration has to be given to the design of the newly merged forms, as changes in the past have caused problems with data collection. This may require consultation with industry or an awareness raising exercise amongst recipients. This would be costly, but may obviate any data errors caused by confusion within the form.

General Issues

The SAF and JAC are two different forms which have a different purpose. Importantly, there is a legal requirement to complete a JAC form under the Agriculture Act 1947, whereas SAF offers a financial reward for compiling forms. A cynical point may be that this divergence of purpose may cause some bias in information provided.

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3.0 Comparison of SAF and JAC holding/business populations

3.1 Introduction

The objective of this section is to assess the adequacy of coverage that SAF would provide in terms of numbers and size of holdings, farm types and geographic distribution. The adequacy of the SAF dataset in terms of its ability to generate answers to the specific questions on areas and numbers within the JAC is addressed in sections 3 and 4. Following a description the materials and methods used (Section 0) the chapter presents analysis comparing how many holdings/businesses are present only in SAF or JAC and which are common to both (Section 0) – these are presented as national summaries and broken down by Farm Type, NUTS4 region and Farm Size represented by Main and Minor holdings as defined by the June Census.

3.2 Materials and Methods

Datasets

The SAF data used for this analysis is a "mirrored" copy of selected tables from the SG SIACS database held at the Macaulay Institute on an Oracle relational database. The database holds complete SAF records for 2005, 2006 and 2007. The latter had been a partial dataset when originally supplied by RPID and was updated with the most recently available data on January 31st. The JAC data was supplied by Analytical Services as "flat file" tabulated data, with one row per holding and a column for each JAC item. The JAC dataset contains both returned and imputed data. Where imputed data is included then the nomenclature JAC(All) is used and where only returns are used then JAC(M&m). Tables to hold the JAC data (one table per year) were added to the MI Oracle database. This permitted the combined used of the two datasets – for example the use of Farm Types defined in the JAC datasets to be used to group sets of holdings within the SAF.

Integration Issues

The distinction between holdings and businesses is a key issue in constraining the comparisons that can be made between JAC questions and SAF items. As noted in Section 1, for the land use related JAC questions information is returned on a field-by-field basis by the SAF Field Data Sheets (FDS)[3] – see Figure 1. There are also known field-to-holding relationships held in the SIACS areas_of_land table[4] that allow aggregation of the SAF (FDS) data to holding level – see Figure 2. Direct holding to holding comparisons can therefore be made for these items between SAF and JAC. The holding level results can also be grouped by Farm Type and by NUTS4 region. The SAF data used for these comparisons is identified as SAF (FDS).

[3] For example cropping, grassland and horticulture.
[4] The Areas_of_Land table of the CDM and are updated via the Land and Business Change Form.

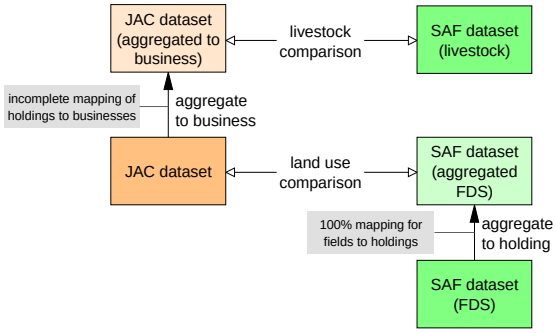


Figure 1. Schematic diagram of JAC and SAF data comparion

For JAC livestock questions the situation is more complex. JAC records livestock numbers at the holding level, but SAF returns for livestock numbers need only be made at the business level which can comprise multiple holdings. Figure 2 illustrates this situation using the Macaulay Institute's research stations as an example – all livestock for three holdings are reported through the Glensaugh holding in Aberdeenshire. This means that for comparisons to be made between the SAF and JAC for livestock items, the JAC data need to be grouped into businesses. When business level JAC data is referred to the nomenclature JAC(All-b)[5]is used. It is possible to link approximately 33,000 JAC holdings to businesses (using relationships stored within the SIACS CDM[6]). Table 1 reports the number of JAC holdings that can be resolved to businesses (33,284 holdings (65%) are resolved to 28,365 businesses in 2007). The inability to resolve all holdings to businesses (18080 remain "orphaned" in 2007[7]) may weaken the utility of the SAF as an alternative or even complementary data source for livestock questions.

Table 1 - Holdings Resolved to Businesses

	2007	2006	2005
JAC (All) - resolved to BRN	33,284	33,593	33,101
JAC (All) - NOT resolved to BRN	18,080	17,768	18,035
JAC(All) resolved to BRN as % of JAC(All)	*65%*	*65%*	*65%*
JAC (All-b)	28,365	28,267	28,597

Even where it is possible to link holdings to a business there remain three of outstanding issues for the comparison or SAF(L) and JAC(All-b).

1. It is not certain if all the holdings that make up a business (with a BRN) must be identified in the SIACS CDM. Not including all holdings in a business could have

[5] The "All-b" nomenclature is used since both returns and imputed data are being used but only for those holdings that have been resolved to businesses.

[6] The tables linking holdings to businesses within SIACS are land_interests and party_roles

[7] While many of the 18080 orphan JAC(All) holdings appear in the SAF it is has not been possible to link these holdings to a business with a BRN. Not all areas of land, recognised as "holdings" in the JAC, form part of "agricultural businesses" for the purposes of payment administration. This may be on the basis of size(?) or since the owners/renters of the land are not applying for the particular support measures administered through the SAF.

seriously distorting effect on aggregation processes and thus on the comparisons between SAF(L) and JAC(All-b)

2. Since some businesses are be made up of holdings with multiple different farm types it is not possible with the data currently available to assign them a single farm type on a consistent basis.
3. Since businesses may be made up of holdings widely separated in geographic space it is not possible to assign them to a single NUTS4 region.

The consequence of the first issue is a further weakening of the comparability of the two datasets and the remaining three issues mean that is that it is not possible to provide a meaningful comparison of livestock figures from JAC(All-b) and SAF(L) by size, Farm Type or at NUTS4 regions (See Sections 3/4).

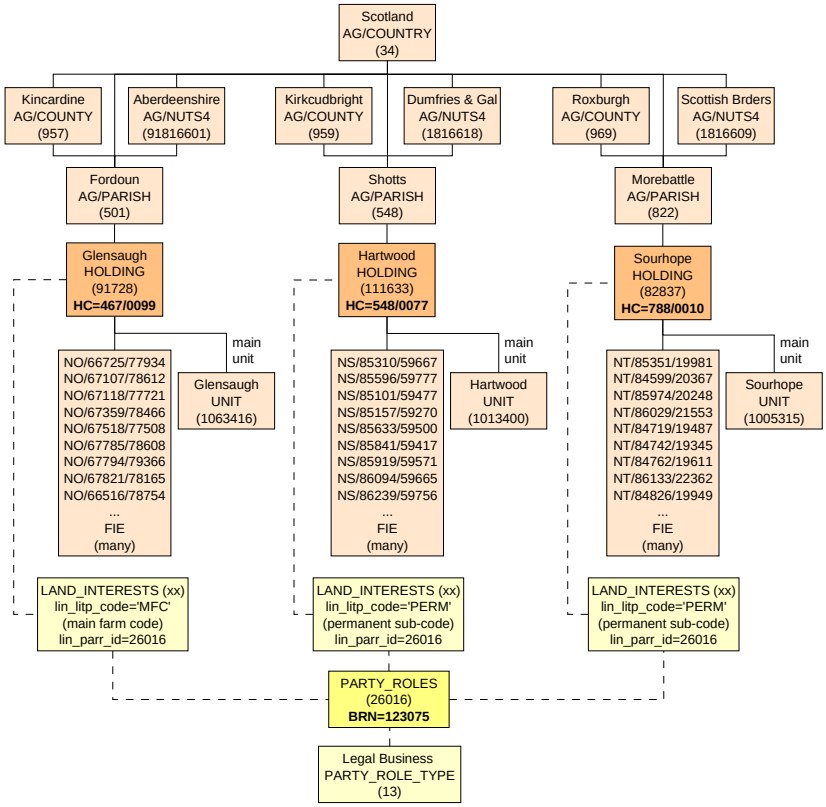


Figure 2. Schematic Diagram of Spatial Identifiers

Analyses and Outputs

The outputs from the analyses are stored as views within the ORACLE database and can be exported as flat text files for use within spreadsheets or as tables in documents. The illustrations in the document other than maps are generated in MS-Excel. The maps in this document are implemented in ArcInfo 9.2 and are used to illustrate the geographic coverage provided by both datasets. The NUTS2 region base maps were provided for research use by Edina[8]. On these maps the shading is used to allow quick comparisons between regions. An exact value of the attribute being mapped is added as a symbol in

[8] http://borders.edina.ac.uk/html/

the centre of each region. The smaller NUTS4 regions in Scotland's "central belt" are shown at a larger scale.

3.3 Results

For the summaries and case-studies the comparison is made between JAC (All) and SAF(FDS) or JAC(All-b) and SAF(L). As noted previously JAC (All) includes imputed data while the SAF based data sets do not. The JAC imputation uses information provided by a holding in a previous year and rolling forward this information using average trends in a particular strata, based on farm size, farm type and geographical location. This provides an imputed value which is partially informed by previous actual data. The imputed data is included in the analysis since Analytical Services wish to asses the implications of substituting SAF returns data (without imputation) for JAC data as it exists at present (i.e. with imputed values). The effectiveness of using JAC imputation procedures with SAF data to create a "complete" coverage lies beyond the scope of this research.

It is possible to identify those holdings for which SAF is returned but JAC is imputed. Such holdings would represent potential additional data that could be made available to JAC. Comparison between holdings where there are returns, termed JAC(M&m), and SAF(FDS) and SAF(L) could bring out where the JAC and SAF datasets overlap, where JAC data alone is available, where SAF data alone is available and where only imputed JAC data is available. Where appropriate supplementary JAC(M&m) figures are included in the summary data to assist with interpretation.

Comparisons of JAC(All) with SAF(FDS)

Table 2 presents a national level summary comparing holding numbers in JAC(All) and SAF(FDS). The table also presents the percentage of holdings covered by SAF(FDS). Table 3 presents the same comparison but on an area basis. For 2007 the coverage of JAC(All) by SAF(FDS) was 59% of holdings and 87 % of area. Again for 2007 coverage of major holdings was larger than for minor holdings at 81% versus 36% of holdings and 89% versus 61%. This reflects the fact that SAF is returned more often by larger units. It is worth noting that in terms of holdings and area the coverage of JAC(All) by SAF(FDS) is improving. RPID staff have also indicated that coverage is likely to increase in 2008 since a wider range of holdings will submit SAF as part of making applications for LMCs.

Table 2 - Count of Holdings and % Coverage JAC(All) by SAF(FDS)

	2007	2006	2005
JAC (M&m)	38,178	38,478	37,868
JAC (Imputed)	13,186	12,883	13,268
JAC (All)	**51,364**	**51,361**	**51,136**
JAC (All) only - main	5,084	5,405	6,141
JAC (All) only - minor	16,117	16,149	17,438
Common JAC (All) & SAF (FDS) - main	20,996	21,373	20,664
Common JAC (All) & SAF (FDS) - minor	9,167	8,434	6,893
SAF (FDS) only	1,055	1,501	1,502
SAF (FDS)	**31,218**	**31,308**	**29,059**
Common main as % of JAC (All) main	*81%*	*80%*	*77%*
Common minor as % of JAC (All) minor	*36%*	*34%*	*28%*
Common as % of JAC (All)	*59%*	*58%*	*54%*

Table 3 – Area of Holdings and % Coverage JAC(All) by SAF(FDS)

	2007	2006	2005
JAC (M&m)	4,349,707	4,416,686	4,175,080
JAC (Imputed)	1,244,852	1,196,042	1,334,815
JAC (All)	**5,594,559**	**5,612,729**	**5,509,895**
JAC (All) only - main	579,948	703,263	769,251
JAC (All) only - minor	130,403	141,767	184,372
Common JAC (All) & SAF (FDS) - main	4,683,674	4,577,665	4,403,263
Common JAC (All) & SAF (FDS) - minor	200,534	190,034	153,009
SAF (FDS) only	328,440	568,184	570,715
SAF (FDS)	**5,244,249**	**5,384,833**	**5,182,693**
Common main as % of JAC (All) main	*89%*	*87%*	*85%*
Common minor as % of JAC (All) minor	*61%*	*57%*	*45%*
Common as % of JAC (All)	*87%*	*85%*	*83%*

JAC(All) vs. SAF(FDS) – Case Study 2007

As a case study the results for 2007 are presented in more detail. The breakdown in the overlap of the holding populations between SAF(FDS) and JAC(All) is shown in Figure 3. Note for these figures the percentages are of all holdings (i.e. JAC(All) plus those in SAF(FDS) only). There is an apparently substantial mismatch in populations (43% are not common). Of that 43%, however, over half are returns from minor holdings. This means that in terms of area rather than holdings the overlap is substantial (82%) with most of that overlap being in main holdings (79%) see Figure 4. There is also some potential to capture more information on land use from the SAF(FDS) only (6% of area). The 31% of the population that are minor holdings in JAC but do not appear in the SAF equate to only 2% of area, but may still be significant for particular activities.

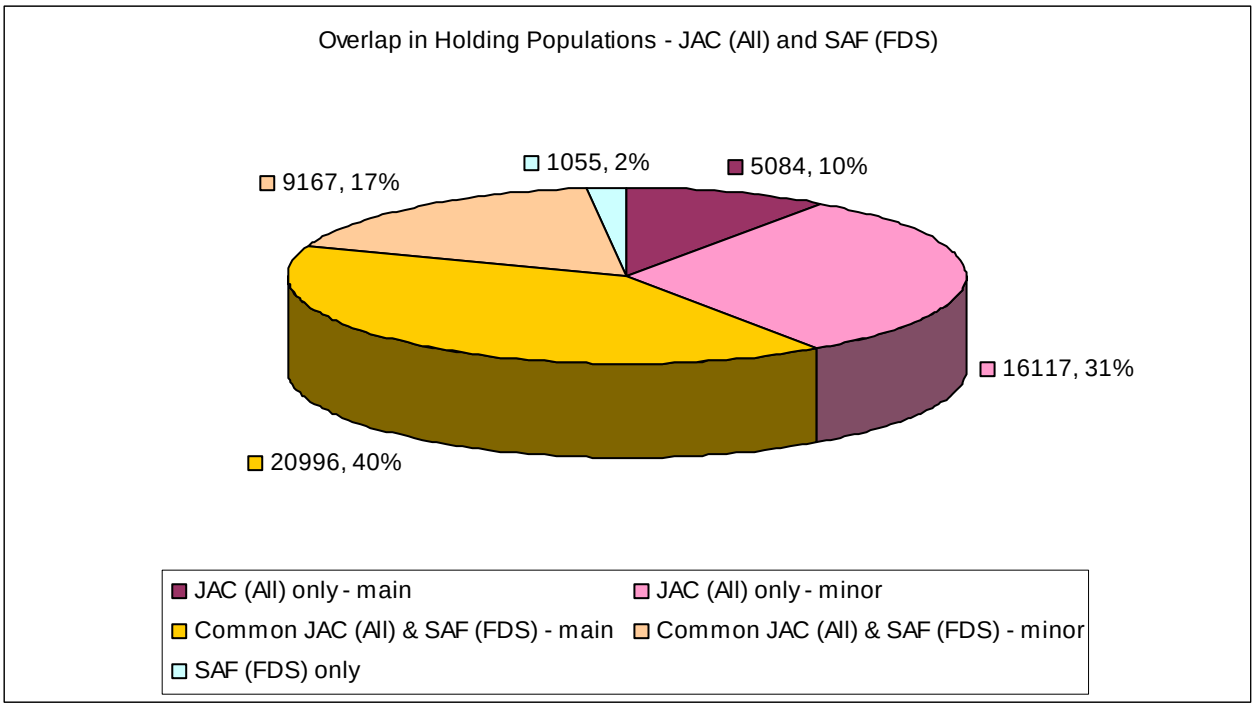


Figure 3.

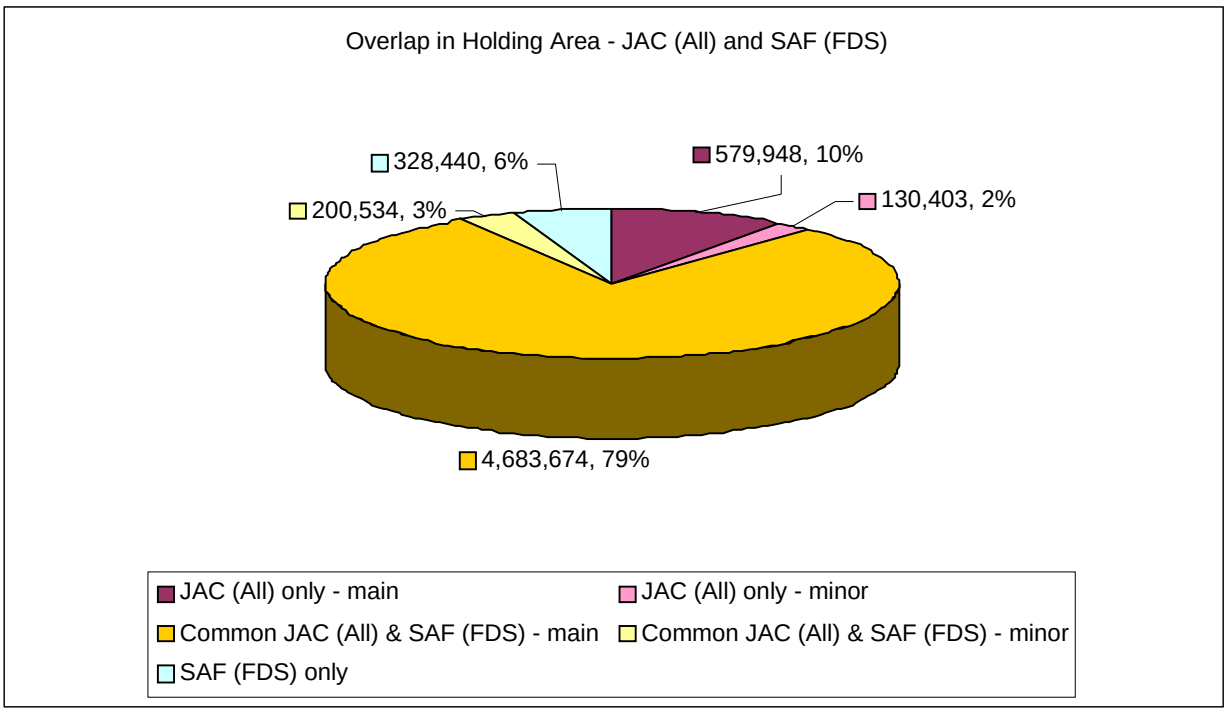


Figure 4.

Comparison of JAC(All) or JAC(All-b) with SAF (L)

The SAF(L) businesses are those identified as claiming under the SFPS. Comparing their coverage with the JAC is complicated by the fact that the livestock numbers for SAF are collected at a business level. This means that some comparisons are only possible between SAF(L) and JAC(All-b) (those JAC holdings that can be resolved to businesses). For example Table 4 presents the count of businesses for the two datasets and the

percentage coverage of JAC(All-b) businesses by SAF(L). The coverage of 69% could be interpreted as superior to the 59% overall coverage of JAC(All) by SAF(FDS) but inferior to the 81% of coverage for JAC(All)-main by SAF(FDS). Comparisons on this basis are potentially misleading, however, since any percentage of JAC(All-b) is a fraction of a significantly smaller whole since for example JAC(All-b) covers only 65% of the JAC(All) holdings (Table 1) and 89% of the area of JAC(All) for 2007 (see Table 5). The comparisons of SAF(L) with JAC(All-b) using counts of businesses are retained here, however, since they inform the interpretation of the individual business-by-business comparisons of livestock numbers presented in Section 3. A more reliable comparison of coverage is provided by using the areas of land covered by each of JAC(All), JAC(All-b) and SAF(L) – see Table 6. From this table it can be seen that SAF(L) provides a comparable coverage (87% of area) for JAC(All-b) (business to business) to that provided by SAF(FDS) for JAC(All) (holding to holding). The coverage of JAC(All) by SAF(L) is, however, significantly inferior, at 78%. Note also the area of land in JAC(All) that cannot be resolved to any business.

Table 4 - Count of businesses in JAC(All-b) and SAF(L)

	2007	2006	2005
JAC (All-b)	28,365	28,267	28,597
JAC (All-b) only	8,854	8,559	8,634
Common JAC (All-b) & SAF (L)	19,511	19,708	19,963
SAF (L) only	1,105	1,226	1,698
SAF (L)	20,616	20,934	21,661
Common as % of JAC(All)	*69%*	*70%*	*70%*

Table 5 - Areas of JAC(All) and JAC(All-b)

	2007	2006	2005
JAC (All)	**5,594,559**	**5,612,729**	**5,509,895**
JAC (All-b)	**4,974,891**	**4,893,892**	**4,734,744**
JAC (All-b) - non imputed area	3,890,372	3,847,490	3,602,917
JAC (All-b) - imputed area	1,084,519	1,046,403	1,131,827
JAC(All-b) as % of JAC(All)	*89%*	*87%*	*86%*

Table 6 - Area of businesses in JAC(All), JAC(All-b) and SAF(L)

	2007	2006	2005
JAC (All)	**5,594,559**	**5,612,729**	**5,509,895**
JAC (All-b)	**4,974,891**	**4,893,892**	**4,734,744**
JAC (All) only	*619,668*	*718,837*	*775,151*
JAC (All-b) only	636,286	604,449	669,113
Common JAC (All-b) & SAF (L)	4,338,605	4,289,443	4,065,631
SAF (L) only	141,944	208,897	250,337
SAF (L)	4,464,274	4,379,559	4,327,196
Common as % of JAC(All-b)	*87%*	*88%*	*86%*
Common as % of JAC(All)	*78%*	*76%*	*74%*

JAC(All) and JAC(All-b) vs. SAF(L) – Case Study 2007

The breakdown in the overlap of the business populations between JAC(All-b) and SAF(L) for 2007 is shown in Figure 5. Note for this figure the percentages in the chart annotation are of JAC(All-b) plus those in SAF(L) only, and thus do not exactly match the percentage figures used as summaries in Table 4. The overlap in the populations of businesses for JAC(All-b) and SAF(L) is 66% while the equivalent coverage of JAC(All) holdings by SAF(FDS) is 57%. As noted for the summaries above this superior coverage is of a smaller population and needs to be interpreted with care. When the comparison is done on the basis of area (see Figure 5), and the area of land within JAC(All) that cannot be resolved to businesses is included (10.8%) then the coverage of JAC(All) by SAF(L) is at 76% inferior to the 82% for SAF(FDS). Without including the areas of the unresolved JAC(All) holdings the coverage of JAC(All-b) is 85%. While there is some potential for additional information from SAF(L) – 4% of businesses and 3% of area there are a substantial number of businesses that appear only in the JAC – 30% of businesses and 11% of area. To repeat there is the need for great care in interpreting both the population and area-based comparisons of SAF(L) and JAC(All) since there are substantial numbers of holdings that cannot be included in the analysis[9] (for the comparison of business numbers) and there are differences in the inclusions and exclusions of areas defined for SAF and JAC.

[9] Since the holdings cannot be resolved to a business – see Section 1.2.2.

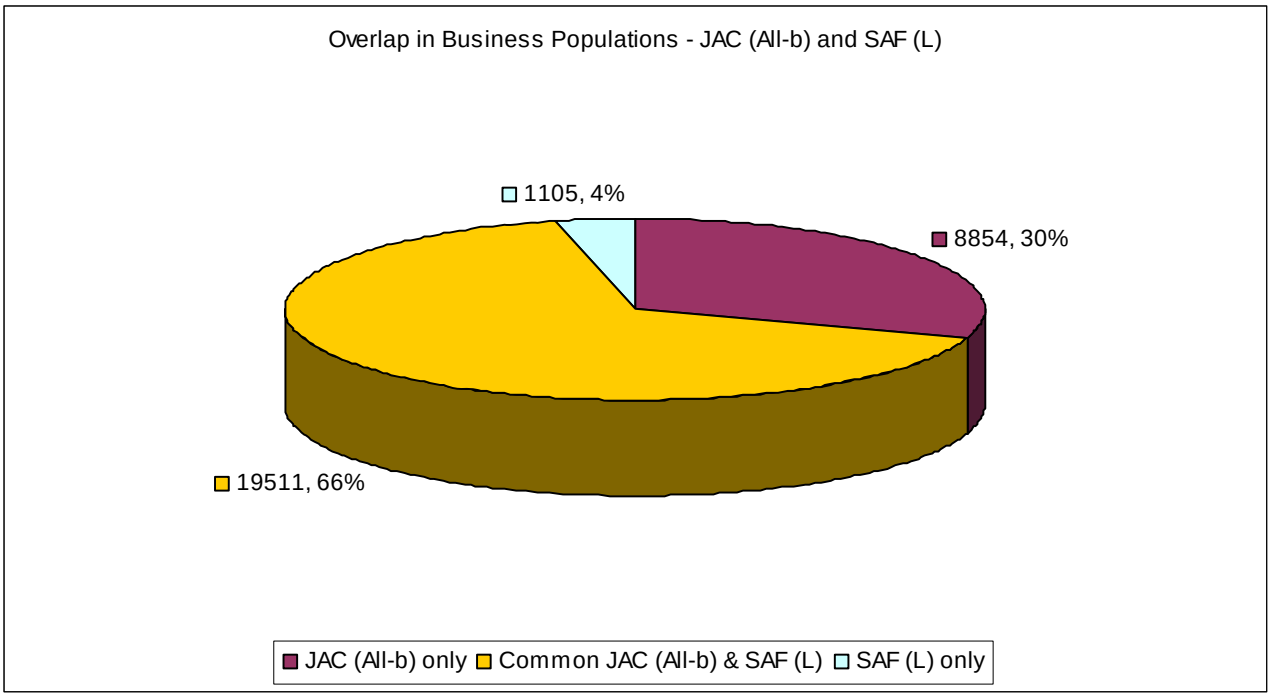


Figure 5.

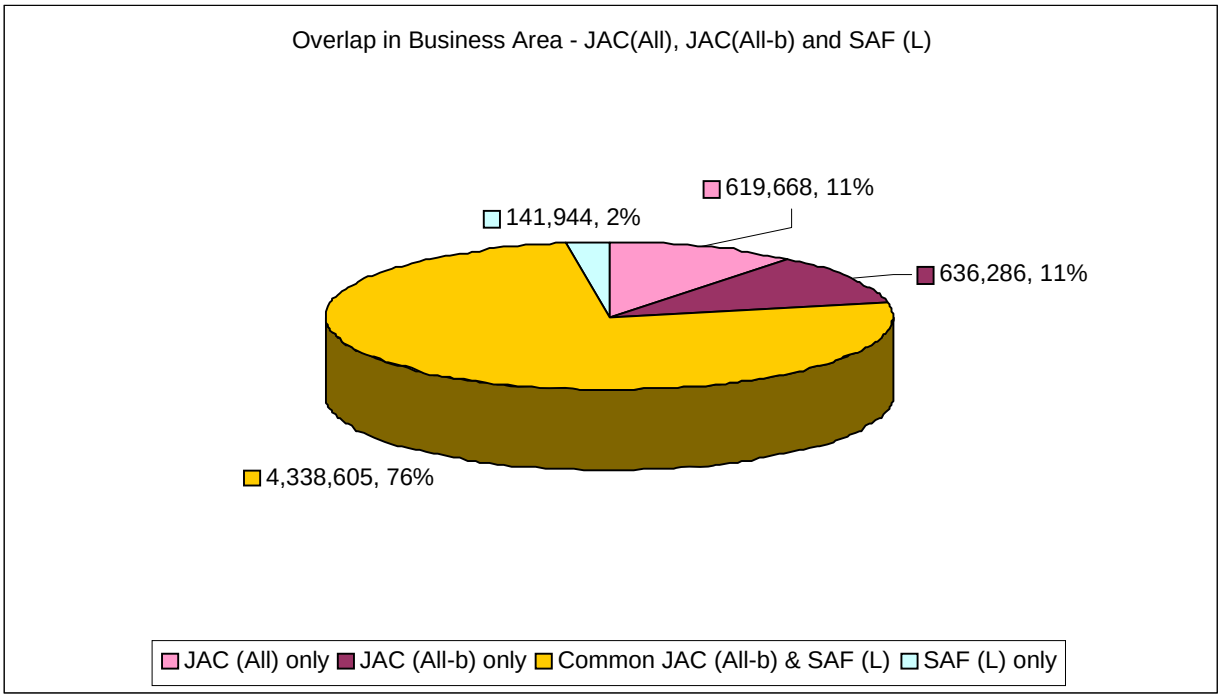


Figure 6.

Farm Type Analysis - JAC(All) vs. SAF(FDS)

The farm type analysis is presented only for the SAF(FDS) for the reasons outlined in Section 1.2.2 (Integration Issues). Tables 6 to 8 show a summary of the coverage per Farm Type for the years 2005-7. Note that since it is not possible, within the scope of this project, to assign farm-types to those holdings which appear only in SAF(FDS) then it is only possible to compare JAC(All) with the SAF(FDS) holdings common to both datasets – the Common (All) column in the tables below.

Table 7 - Farm Type Analysis 2007

2007 Count of Holdings	JAC (M&m)	JAC (Imputed)	JAC (All)	JAC (All) only main	JAC (All) only minor	Com-mon main	Com-mon minor	Comm main as % of JAC (All) main	Comm minor as % of JAC (All) minor	Comm'n as % of JAC (All)	JAC(I) as % of JAC(All)
Cattle and sheep (LFA)	10,589	3,491	14,080	903	1,356	9,333	2,488	91%	65%	84%	25%
Cattle and sheep (Lowland)	1,356	413	1,769	260	525	783	201	75%	28%	56%	23%
Cereals	2,593	967	3,560	246	91	3,014	209	92%	70%	91%	27%
Dairy	911	518	1,429	47	12	1,362	8	97%	40%	96%	36%
General Cropping	1,770	490	2,260	137	307	1,686	130	92%	30%	80%	22%
Horticulture	727	246	973	421	347	142	63	25%	15%	21%	25%
Mixed	1,726	606	2,332	150	240	1,806	136	92%	36%	83%	26%
Other	17,235	6,167	23,402	2,530	12,495	2,670	5,707	51%	31%	36%	26%
Specialist Pigs	144	41	185	64	52	56	13	47%	20%	37%	22%
Specialist Poultry	1,127	247	1,374	326	692	144	212	31%	23%	26%	18%
	38178	13186	51364	5084	16117	20996	9167	81%	36%	59%	26%

Table 8 - Farm Type Analysis 2006

2006 Count of Holdings	JAC (M&m)	JAC (Imputed)	JAC (All)	JAC (All) only main	JAC (All) only minor	Com-mon main	Com-mon minor	Comm main as % of JAC (All) main	Comm minor as % of JAC (All) minor	Comm'n as % of JAC (All)	JAC(I) as % of JAC(All)
Cattle and sheep (LFA)	10,772	3,648	14,420	976	1,370	9,789	2,285	91%	63%	84%	25%
Cattle and sheep (Lowland)	1,376	376	1,752	282	492	786	192	74%	28%	56%	21%
Cereals	2,595	963	3,558	268	97	3,011	182	92%	65%	90%	27%
Dairy	1,005	467	1,472	58	12	1,398	4	96%	25%	95%	32%
General Cropping	1,773	513	2,286	165	326	1,672	123	91%	27%	79%	22%
Horticulture	751	230	981	425	366	130	60	23%	14%	19%	23%
Mixed	1,779	593	2,372	165	231	1,855	121	92%	34%	83%	25%
Other	17,239	5,818	23,057	2,679	12,566	2,543	5,269	49%	30%	34%	25%
Specialist Pigs	118	39	157	51	48	52	6	50%	11%	37%	25%
Specialist Poultry	1,070	236	1,306	336	641	137	192	29%	23%	25%	18%
	38478	12883	51361	5405	16149	21373	8434	80%	34%	58%	25%

Table 9 - Farm Type Analysis 2005

2005 Count of Holdings	JAC (M&m)	JAC (Imputed)	JAC (All)	JAC (All) only main	JAC (All) only minor	Com-mon main	Com-mon minor	Comm main as % of JAC (All) main	Comm minor as % of JAC (All) minor	Comm'n as % of JAC (All)	JAC(I) as % of JAC(All)
Cattle and sheep (LFA)	10,630	3,778	14,408	962	1,502	9,671	2,273	91%	60%	83%	26%
Cattle and sheep (Lowland)	1,246	371	1,617	251	530	696	140	73%	21%	52%	23%
Cereals	2,736	997	3,733	379	152	2,999	203	89%	57%	86%	27%
Dairy	1,017	506	1,523	46	18	1,452	7	97%	28%	96%	33%
General Cropping	1,774	520	2,294	183	370	1,643	98	90%	21%	76%	23%
Horticulture	737	222	959	412	382	108	57	21%	13%	17%	23%
Mixed	1,776	642	2,418	217	218	1,849	134	89%	38%	82%	27%

Other	16,932	5,969	22,901	3,352	13,579	2,129	3,841	39%	22%	26%	26%
Specialist Pigs	103	42	145	52	44	42	7	45%	14%	34%	29%
Specialist Poultry	917	221	1,138	287	643	75	133	21%	17%	18%	19%
	37868	13268	51136	6141	17438	20664	6893	77%	28%	54%	26%

Farm Types Analysis – 2007 Case Study

Figures 7 and 8 provide a further break down of the per Farm Type coverage of JAC(All) provided by SAF (FDS). Figure 7 presents the breakdown as the count of holdings in both datasets and those only within JAC(All). Figure 12 presents the percentage of coverage for each Farm Type.

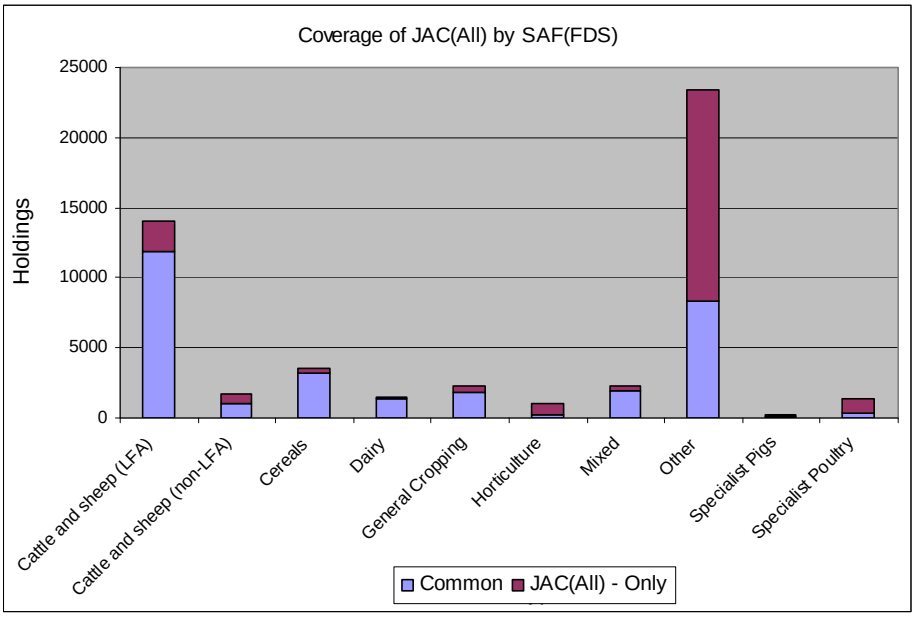


Figure 7

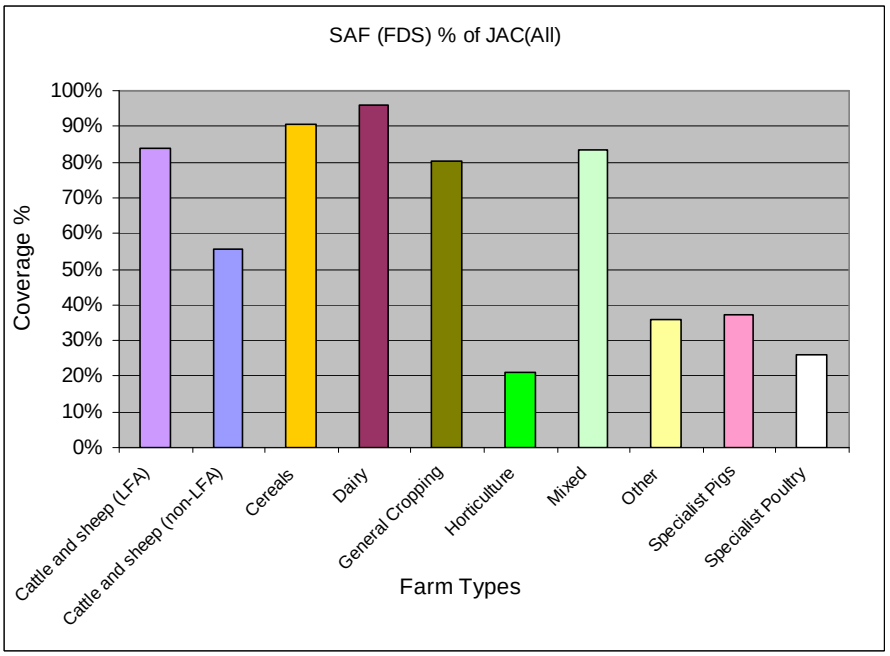


Figure 8.

The differences in the proportion of coverage of JAC(All) by SAF(FDS) reflect the activities administered through SAF – with strong coverage of LFA farm, cereals, dairy , general cropping and mixed farming. Coverage of horticulture and specialist livestock are lower since these have not been recipients of support (?) and the low coverage of Other perhaps reflects the fact that many of these holdings are small holdings who do not make SAF applications.

Imputation

An average of 25% of JAC(All) holdings contain only imputed data (this percentage does not include minor holdings unless they have not made a return for more than three years). Figure 12 shows the breakdown by Farm Type of the percentages imputed, with a range from 18 % for Specialist Poultry to 36% for Dairy.

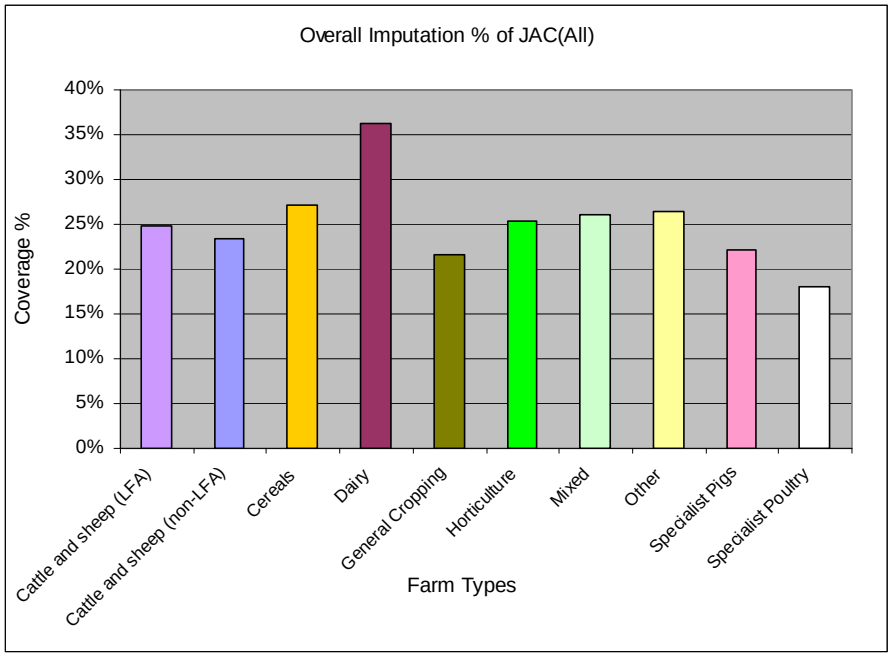


Figure 9

This means that there is some potential for SAF(FDS) data to add value to the JAC by providing values where otherwise only imputed values are available. The relative importance of these sources is presented in Figure 13. This presents as a percentage of JAC(All) holding numbers the following:

1. Holdings with returns from both SAF(FDS) and JAC(All) – i.e. the overlap of JAC(M&m) and SAF(FSD), termed Common;
2. Holdings with SAF (FDS) returns but only imputed JAC data;
3. Holdings with JAC(M&m) data and no SAF(FDS) returns and
4. Holdings with imputed JAC data only, JAC(I).

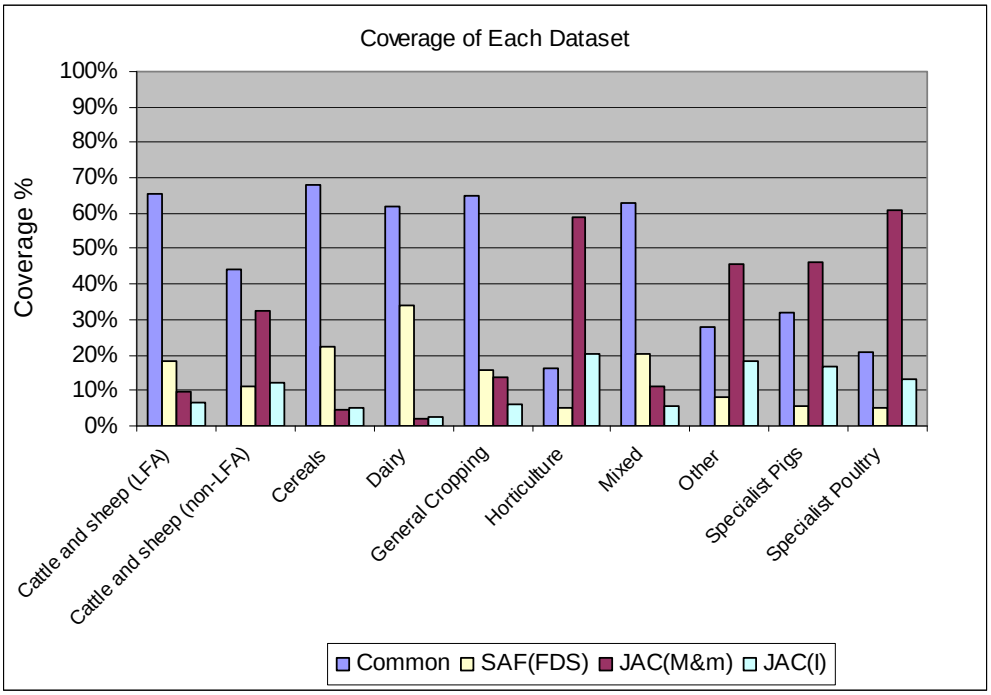


Figure 10.

From this figure it is possible to identify cases such as Cattle and Sheep (LFA), Cereals, Dairy and Mixed Farming where use of SAF(FDS) could lead to significant reductions in the need for imputation, no Farm Type with more than 20%.

NUTS4 Regional Analysis - SAF(FDS) vs JAC(All)

Tables 9-11 present for the years 2005-7 the break down by NUTS4 region of the coverage of JAC(All) provided by SAF(FDS).

Table 10 - NUTS4 Breakdown 2007

2007 Holdings	JAC (M&m)	JAC (Imputed)	JAC (All)	JAC (All) only main	JAC (All) only minor	Com-mon main	Com-mon minor	SAF (FDS) only	SAF (FDS)	SAF (FDS) as % of JAC (All)
Aberdeen City	188	67	255	29	109	94	23	2	120	47%
Aberdeenshire	5448	1674	7122	650	2235	3285	952	52	4289	60%
Angus	1013	260	1273	130	274	793	76	14	883	69%
Argyll & Bute Islands	496	203	699	88	161	342	108	53	577	83%
Argyll & Islands (Rest of)	837	267	1104	107	300	518	179	26	649	59%
Arran & the Cumbraes	142	45	187	18	51	81	37	5	123	66%
Badenoch & Strathspey	322	136	458	41	105	242	70	3	197	43%
Caithness & Sutherland	2458	791	3249	286	1041	1200	722	110	2032	63%
Clackmannanshire	117	31	148	20	51	59	18		77	52%
Dumfries & Galloway	3023	959	3982	331	961	2050	640	44	2732	69%
Dundee City	1		1			1			1	100%
East Ayrshire	826	323	1149	93	307	539	210	13	762	66%
East Dunbartonshire	134	67	201	27	70	67	37	3	107	53%
East Lothian	405	117	522	67	129	290	36	2	328	63%
East Renfrewshire	142	55	197	19	57	80	41	2	123	62%
Edinburgh, City of	106	41	147	33	40	65	9	3	63	43%
Eilean Siar	4595	1798	6393	503	2698	1318	1874	286	3478	54%
Falkirk	290	128	418	58	144	165	51	2	218	52%
Fife	1072	373	1445	200	461	676	108	13	796	55%
Glasgow City	17	7	24		9	12	3		15	63%
Helensburgh & Lomond	60	41	101	15	24	47	15	2	64	63%
Inverclyde	66	28	94	10	17	42	25	1	68	72%
Inverness & Nairn	822	344	1166	156	390	438	182	14	634	54%
Lochaber	752	257	1009	129	456	275	149	21	445	44%
Midlothian	223	98	321	53	107	136	25	2	163	51%
North Ayrshire Mainland	363	146	509	37	144	221	107	5	333	65%
North East Moray	684	181	865	87	238	434	106	7	547	63%
North Lanarkshire	348	208	556	83	185	195	93	13	301	54%
Orkney Islands	1524	445	1969	106	538	782	543	13	1337	68%
Perth & Kinross	1773	532	2305	257	666	1132	250	11	1393	60%
Renfrewshire	213	99	312	33	62	132	85	7	224	72%
Ross & Cromarty	1725	592	2317	261	863	784	409	18	1211	52%
Scottish Borders	1903	463	2366	250	622	1203	291	14	1508	64%
Shetland Islands	1423	460	1883	177	356	818	532	75	1425	76%
Skye & Lochalsh	1487	651	2138	201	959	489	489	55	1033	48%
South Ayrshire	638	271	909	105	219	442	143	14	599	66%
South Lanarkshire	1163	518	1681	175	508	748	250	13	1011	60%
Stirling	661	237	898	87	258	421	132	7	560	62%
West Dunbartonshire	101	44	145	15	50	51	29		80	55%
West Lothian	376	139	515	102	160	180	73	8	275	53%
West Moray	241	90	331	45	92	149	45	5	317	96%
none specified								117	120	
	38178	13186	51364	5084	16117	20996	9167	938	31098	

Table 11 – NUTS4 Breakdown 2006

2006 Holdings	JAC (M&m)	JAC (Imputed)	JAC (All)	JAC (All) only main	JAC (All) only minor	Com-mon main	Com-mon minor	SAF (FDS) only	SAF (FDS)	SAF (FDS) as % of JAC (All)
Aberdeen City	194	63	257	33	109	92	23	1	117	46%
Aberdeenshire	5500	1590	7090	703	2143	3360	884	43	4287	60%
Angus	1008	263	1271	152	259	800	60	18	878	69%
Argyll & Bute Islands	492	207	699	83	176	350	90	62	576	82%
Argyll & Islands (Rest of)	833	274	1107	124	318	512	153	30	621	56%
Arran & the Cumbraes	147	43	190	25	54	82	29	3	114	60%
Badenoch & Strathspey	336	124	460	48	98	242	72	7	198	43%
Caithness & Sutherland	2488	745	3233	289	1088	1210	646	210	2066	64%
Clackmannanshire	111	36	147	19	50	60	18	1	79	54%
Dumfries & Galloway	3075	910	3985	337	954	2102	592	39	2733	69%
Dundee City	1		1			1			1	100%
East Ayrshire	846	311	1157	112	313	537	195	11	743	64%
East Dunbartonshire	138	64	202	39	68	63	32	4	99	49%
East Lothian	413	108	521	77	127	288	29	4	321	62%
East Renfrewshire	140	55	195	19	60	79	37	3	119	61%
Edinburgh, City of	104	44	148	30	47	64	7	2	61	41%
Eilean Siar	4585	1795	6380	507	2757	1374	1742	295	3411	53%
Falkirk	294	123	417	65	138	164	50	3	217	52%
Fife	1082	349	1431	208	438	685	100	14	798	56%
Glasgow City	14	12	26	2	9	11	4		15	58%
Helensburgh & Lomond	67	36	103	14	26	48	15	1	64	62%
Inverclyde	64	28	92	12	17	40	23	2	65	71%
Inverness & Nairn	811	328	1139	145	384	435	175	24	634	56%
Lochaber	748	266	1014	147	449	285	133	61	479	47%
Midlothian	226	95	321	58	101	138	24	2	164	51%
North Ayrshire Mainland	366	138	504	40	142	227	95	5	327	65%
North East Moray	679	183	862	102	231	434	95	6	535	62%
North Lanarkshire	352	203	555	82	192	191	90	13	294	53%
Orkney Islands	1545	422	1967	105	557	800	505	27	1332	68%
Perth & Kinross	1806	533	2339	276	655	1169	239	16	1424	61%
Renfrewshire	215	96	311	39	69	130	73	5	208	67%
Ross & Cromarty	1726	588	2314	278	873	791	372	86	1249	54%
Scottish Borders	1876	475	2351	262	614	1212	263	24	1499	64%
Shetland Islands	1436	536	1972	215	361	920	476	183	1579	80%
Skye & Lochalsh	1486	646	2132	197	1003	482	450	182	1114	52%
South Ayrshire	656	251	907	102	228	448	129	12	589	65%
South Lanarkshire	1211	460	1671	187	495	746	243	20	1009	60%
Stirling	666	233	899	104	242	422	131	7	560	62%
West Dunbartonshire	112	34	146	14	50	56	26		82	56%
West Lothian	392	126	518	109	163	176	70	6	264	51%
West Moray	237	90	327	45	91	147	44	7	321	98%
none specified								62	62	
	38478	12883	51361	5405	16149	21373	8434	1501	31308	

Table 12 - NUTS4 Breakdown 2005

2005 Holdings	JAC (M&m)	JAC (Imputed)	JAC (All)	JAC (All) only main	JAC (All) only minor	Com-mon main	Com-mon minor	SAF (FDS) only	SAF (FDS)	SAF (FDS) as % of JAC (All)
Aberdeen City	194	64	258	35	121	88	14	2	104	40%
Aberdeenshire	5359	1685	7044	826	2404	3210	604	40	3854	55%
Angus	1016	268	1284	162	279	798	45	14	857	67%
Argyll & Bute Islands	509	210	719	73	174	360	112	66	609	85%
Argyll & Islands (Rest of)	859	250	1109	143	347	515	104	25	573	52%
Arran & the Cumbraes	139	46	185	28	53	78	26	2	106	57%
Badenoch & Strathspey	327	136	463	67	121	222	53	8	181	39%
Caithness & Sutherland	2415	791	3206	317	1154	1154	581	218	1953	61%
Clackmannanshire	121	25	146	28	48	60	10		70	48%
Dumfries & Galloway	3029	928	3957	424	1076	2048	409	31	2487	63%
Dundee City	1		1			1			1	100%
East Ayrshire	826	328	1154	156	382	503	113	12	628	54%
East Dunbartonshire	137	62	199	31	83	62	23	3	88	44%
East Lothian	403	115	518	94	128	271	25	2	298	58%
East Renfrewshire	137	58	195	19	72	76	28	3	107	55%
Edinburgh, City of	104	43	147	32	50	60	5	3	58	39%
Eilean Siar	4451	1896	6347	510	2857	1291	1689	306	3286	52%
Falkirk	279	132	411	59	138	174	40	3	217	53%
Fife	1053	351	1404	211	445	674	74	7	755	54%
Glasgow City	15	11	26	6	10	9	1		10	38%
Helensburgh & Lomond	70	35	105	17	28	49	11	2	62	59%
Inverclyde	62	28	90	12	23	41	14	2	57	63%
Inverness & Nairn	786	333	1119	163	386	417	153	26	596	53%
Lochaber	743	266	1009	153	455	293	108	60	461	46%
Midlothian	228	96	324	65	111	130	18	2	150	46%
North Ayrshire Mainland	344	152	496	59	181	204	52	8	264	53%
North East Moray	675	183	858	137	250	402	69	7	477	56%
North Lanarkshire	348	203	551	99	209	176	67	12	255	46%
Orkney Islands	1516	443	1959	144	638	777	400	27	1203	61%
Perth & Kinross	1829	508	2337	308	710	1162	157	17	1336	57%
Renfrewshire	216	99	315	58	90	121	46	7	174	55%
Ross & Cromarty	1647	649	2296	291	917	756	332	89	1177	51%
Scottish Borders	1908	438	2346	321	633	1203	189	11	1402	60%
Shetland Islands	1460	526	1986	218	393	918	457	186	1561	79%
Skye & Lochalsh	1440	674	2114	191	1036	473	414	184	1071	51%
South Ayrshire	646	265	911	117	285	420	89	9	518	57%
South Lanarkshire	1178	492	1670	249	540	710	171	12	893	53%
Stirling	676	221	897	126	284	404	83	7	494	55%
West Dunbartonshire	109	36	145	20	55	51	19		70	48%
West Lothian	384	132	516	120	178	168	50	5	233	45%
West Moray	229	90	319	52	94	135	38	6	281	88%
none specified								78	82	
	37868	13268	51136	6141	17438	20664	6893	1502	29059	

NUTS4 Regional Analysis – 2007 Case Study

The NUTS4 regional analysis comparing the JAC (All) and SAF (FDS) for 2007is presented as a series of maps in Annex III to this document.

4.0 Comparing JAC-SAF at Individual and Aggregated Level

This section meets Objective (iv): "To compare data from the JAC and SAF datasets at both the aggregated and individual unit level and to assess the suitability of SAF data for statistical purposes"

4.1 Introduction

The objective of of this and the next section is to assess the suitability of SAF data for statistical purposes. To this end two comparisons were desired.

1. An *individual comparison* on a holding-by-holding or business-by-business basis of the JAC and SAF values for each comparable Item (CI) (see Section 1) – these individual comparisons are then aggregated to give overall national figures and breakdowns by size, Farm Type and NUTS4 region. This *compare-then-aggregate* (CA) strategy can consider only those holdings or businesses common to both datasets – the overlap in Figure 11 (59% of holdings or 87% of area – see Section2). The individual comparison is presented in Section 3.

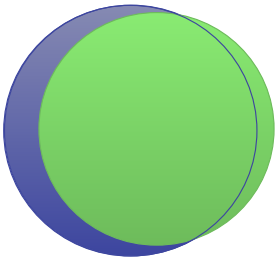


Figure 11 - Datasets considered in the analysis.

2. An *aggregated comparison* considers the two dataset separately. For CI's in each dataset aggregated values are calculated for the national, size, Farm Type and NUTS4 regional groupings. These aggregated values are then compared. This is the *aggregate-then-compare* (AC) strategy and is presented in Section 4.

Both analyses are required since they each have complementary advantages and limitations. Since CA uses individual comparisons both the *absolute* levels of error (AE)[10] and the *compensating* errors (CE)[11] between the datasets can be estimated. CE's are smaller than the AE values but could be the more significant measure for national level statistics if overall totals are more important that specifying exactly what is where. The importance of AE's is increase for lower levels of aggregation where the smaller populations mean that there is less opportunity for compensating errors this is most significant at smaller levels of aggregation where it is necessary to specify more exactly what is where. The AC strategy since it aggregates first can only present the compensating errors, but AC is advantageous since it makes comparisons using data from all the holdings in each dataset, whereas CA uses only the subset of holdings which are

[10] Absolute Error is the sum of all the errors disregarding their sign.

[11] Compensating Errors is the sum of all errors and allows over estimation (+ve numbers) in one holding to compensate for underestimation (-ve numbers) in another.

common to both. Finally the CA strategy also has the advantage of allowing the generation of histograms plots presenting the count of holdings versus the size distribution of their errors.

4.2 Materials and Methods

The analysis uses the same datasets as section 2.0. These are the SAF and JAC datasets for 2005 to 2007 both held as Oracle tables. A schematic for the analysis is presented in Figure 2 below.

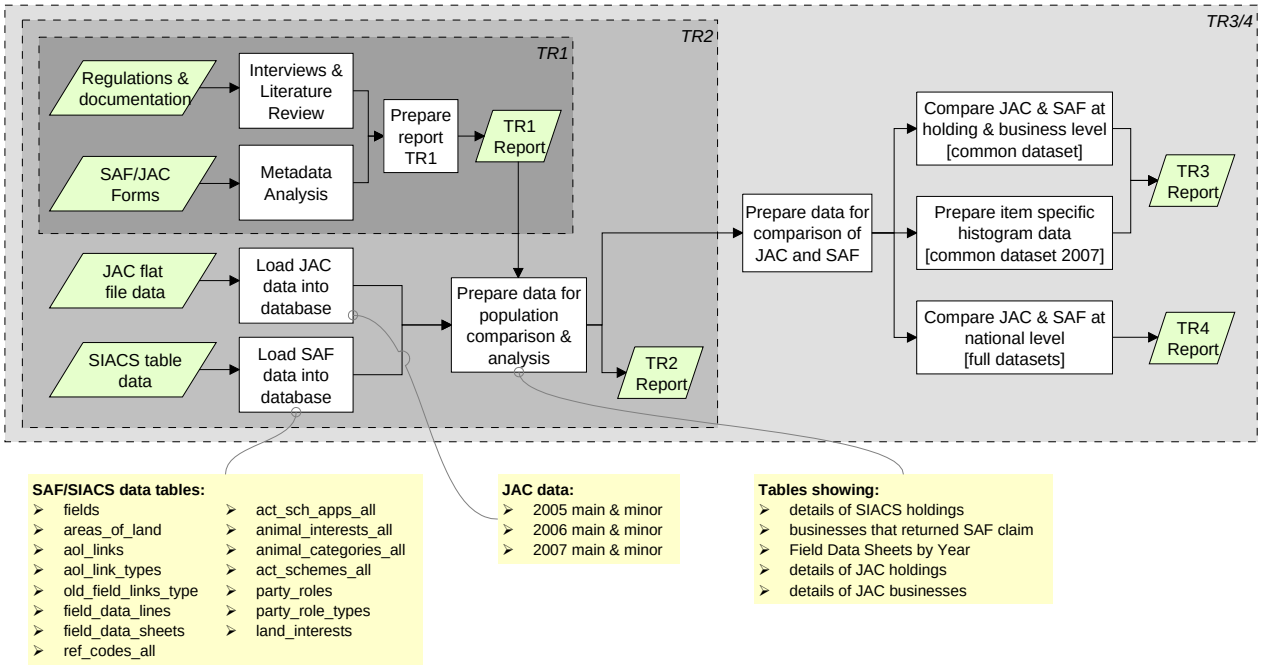


Figure 12 – Schematic for the analysis in Section 3 and 4.

Drawing on the meta-data in Section 1 (defining the corresponding categories in the two datasets and the nature or their match) and on the data structures of Section 2 (set up to compare the SAF and JAC populations) the analyses outlined in Section 1 were made. For the holdings in common (determined by matching the SAF and JAC database tables) the areas per item per holding were tabulated and the absolute and compensating differences calculated using SQL queries. The outputs from these queries were exported to indexed MS-Excel files to be compatible with further analyses by Analytical Services. The results were sorted and grouped as required for the tables in Section 3. Histograms showing the distribution of difference values for the year 2007 were also prepared in MS-Excel (one file per JAC item) – for examples see Section 3. For Section 4 the complete populations of both JAC and SAF holdings were classified and grouped separately by size, Farm Type and NUTS4 region (4 SQL queries) the difference values were then calculated and exported to MS-Excel files.

4.3 Results

4.3.1. Individual Comparison

The outcomes of the individual comparisons are in all cases presented by commodity grouping and then ordered by JAC Items. Additional summary items suggested by SG Analytical Services are italicised. For Section 3 each table presents the Item, Year, the JAC common total, the SAF(FDS or L) total, the difference SAF-JAC (Diff), the difference as a percentage of JAC common total (%Diff), the absolute difference (ABSDiff) and the ABSDiff as a percentage of JAC common total. Positive figures for the difference values mean that the SAF is larger than JAC while negative values mean SAF is smaller.

Overall (National) All Data – 2007 Only

For Crops (Table 1) the range in Diff is from 1% (Spring Barley and Total Cereals) to 362% (Mixed Grains). The largest errors tend to be associated with Items with broader definitions e.g. Mixed Grains or Other/unspecified crops (362% and -79%) or for Items with smaller areas e.g. Lupins (107%) where one or two differences can have a big impact. The large disagreements between JAC and SAF for “Mixed Grain” may result from the use by JAC of a more restrictive definition, where only mixtures of two or more of wheat, barley and oats are acceptable. There are more Items with negative Diffs (JAC>SAF) which may reflect differences in how area calculations and deductions are made in the two datasets. The AbsDiff values are larger than Diff, and in some cases much larger, e.g. 23% versus 1% for Spring Barley. In some cases where the Diff is large the AbsDiff shows a smaller rise. e.g. Lupins with 107% versus 181%.

Table 13 – Total Crops Data for 2007, Differences

Item	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Set-aside (ITEM3)	66,127	58,590	-7,538	27,464	-11%	42%
Triticale (ITEM15)	1,225	1,537	312	1,015	26%	83%
Wheat (ITEM14)	100,854	105,282	4,428	24,881	4%	25%
Winter Barley (ITEM16)	51,568	49,049	-2,519	17,289	-5%	34%
Spring Barley (ITEM18)	221,371	223,295	1,924	51,930	1%	23%
Winter Oats (ITEM17)	6,958	6,394	-564	2,888	-8%	42%
Spring Oats (ITEM20)	13,146	12,531	-615	6,812	-5%	52%
Mix Grain (ITEM22)	391	1,806	1,415	1,907	362%	488%
Total Cereals (ITEM14-18,20,22)	395,512	398,088	2,576	69,967	1%	18%
Winter OSR (ITEM19)	33,818	33,523	-295	10,206	-1%	30%
Spring OSR (ITEM23)	1,878	340	-1538	1,626	-82%	87%
Total OSR (ITEM19,23)	35,696	33,863	-1833	11,457	-5%	32%
Linseed (ITEM21)	151	6	-145	158	-96%	104%
Seed Potatoes (ITEM24)	11,286	9,617	-1,669	7,610	-15%	67%
Ware Potatoes (ITEM25/26)	17,373	14,705	-2,668	9,152	-15%	53%
Total Potatoes (ITEM24-26)	28,659	24,322	-4,337	13,850	-15%	48%
Beans (ITEM27)	3,405	4,108	703	1,659	21%	49%
Peas (ITEM28)	1,733	1,833	100	1,760	6%	102%
Lupins (ITEM2034)	409	846	438	740	107%	181%
Turnips/swedes (ITEM29)	6,291	5,621	-669	2,890	-11%	46%
Rape for Stock (ITEM31)	2,824	2,454	-370	2,676	-13%	95%
Maize (ITEM2059)	1,178	1,341	163	692	14%	59%
Kale/Cabbage, Beet, Other (ITEM30/32/34)	13,216	7,239	-5,978	13,059	-45%	99%
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	23,917	17,501	-6,416	16,301	-27%	68%
Vegetables (ITEM35)	11,395	7,498	-3,897	7,252	-34%	64%
Orchard fruit (ITEM36)	12	5	-7	11	-61%	93%
Soft fruits (ITEM37)	1,633	1,570	-63	716	-4%	44%
Other/unspecified crops (ITEM38/41)	15,908	3,290	-12,618	16,001	-79%	101%
Bare Fallow (ITEM39)	10,731	7,104	-3,627	9,634	-34%	90%
Total crops, fallow, setaside (ITEM40)	587,277	558,013	-29,265	115,047	-5%	20%

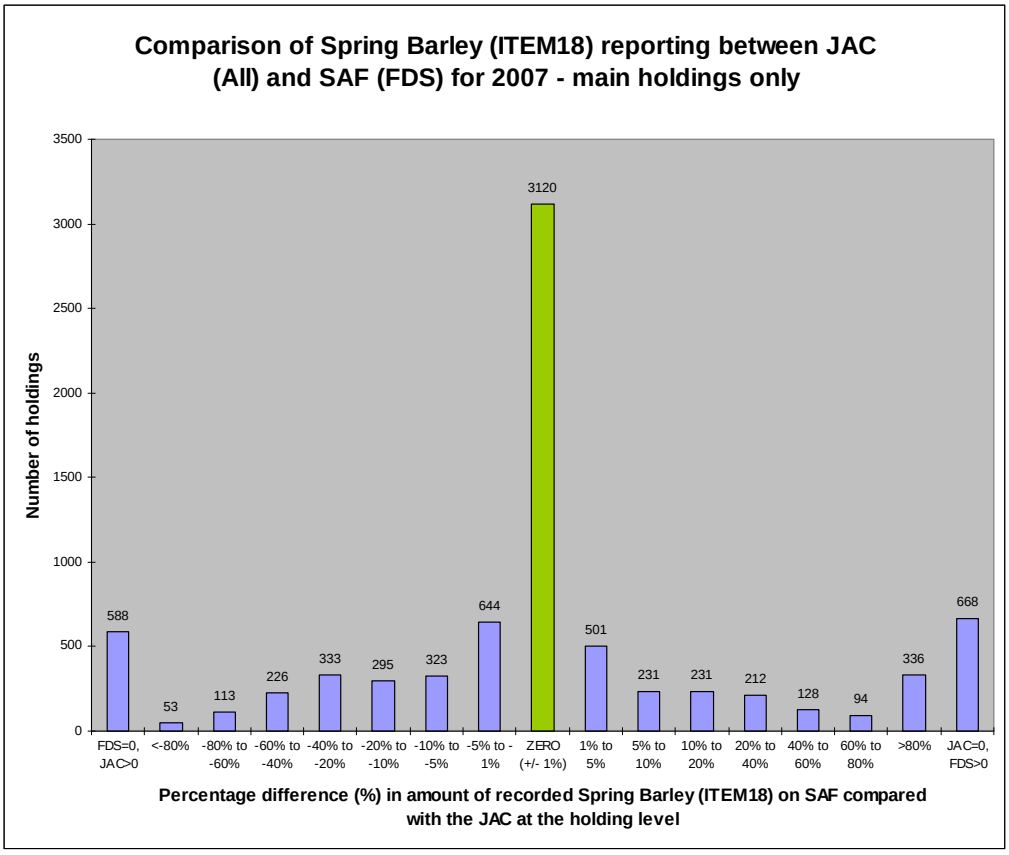


Figure 13

The distributions of the % Diffs for the individual holding-to-holding comparisons have been calculated for each of the Items at National level and with a breakdown for Main and Minor holdings. The distribution charts used for illustration in Section 3 are those for Main holdings only, since it was the view of Analytical Services that including the minor holdings in a presentation of holding counts would skew the patterns since minor holdings make "very small" contributions to the overall totals. The distribution charts show characteristics patterns for good and poorer matches. Spring Barley (Figure 3) is an example of a good match, with a strong "peak" around the "zero" difference value with a tailing off in counts as the size of the errors increase. There can often be an increase in counts at the edges of the histograms since the categories <-80% and >80% capture a wider range than the inner bins.

The outer bins are also unusual since they are designed to capture the specific circumstances when one of the datasets records an area while the other does not[12]. The holdings listed on SAF but not on JAC (JAC=0) may contain a small number of holdings which have never responded to census, but the bulk of them seem more likely to be landless keepers submitting SAF. Landless keepers own no land, and rent no land under a full tenancy, and thus do not receive a census form. They may carry out agricultural activities on seasonally let land or on common grazings. Crop growing on seasonally let land should be reported by the land owner on their census form, but would not form a part of their SAF submission leading to a complementary mismatch for two holdings (contributing to larger absolute than compensating difference values).

[12] The nomenclature JAC or SAF = 0 is used in the chart for simplicity but in reality there is not a zero value recorded in these cases rather a null or no data value.

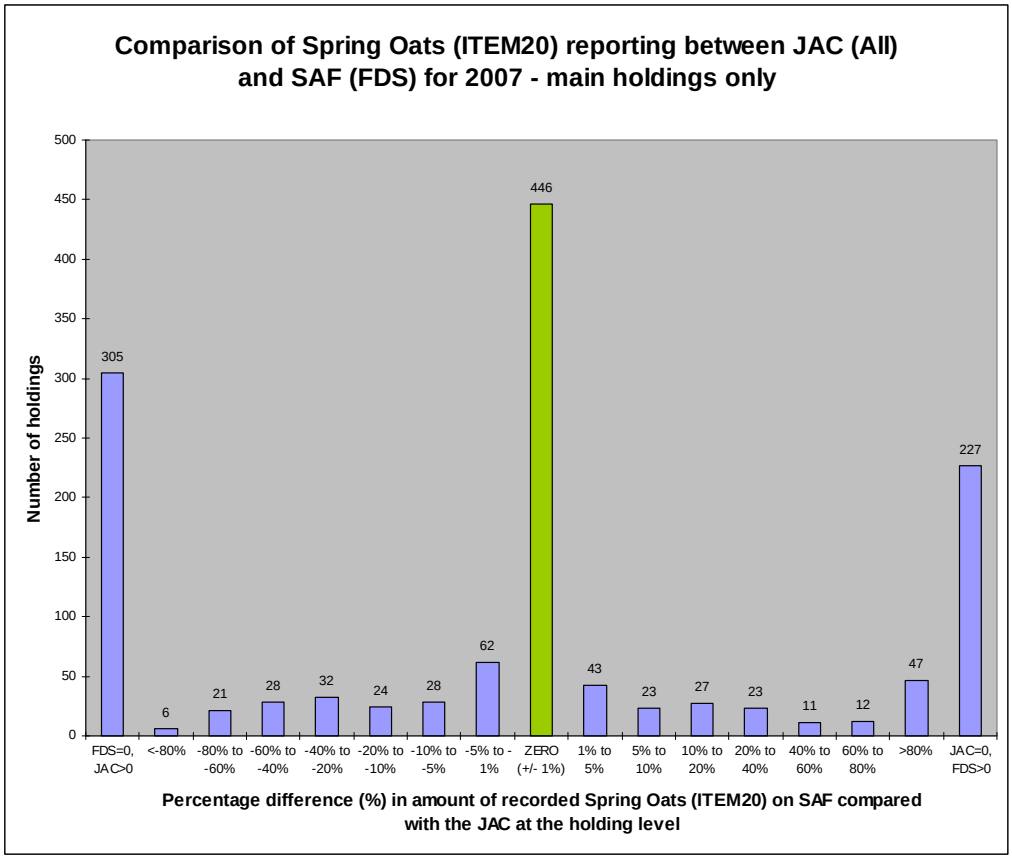


Figure 14

Where the match is poorer then the two outer categories become more prominent, e.g. Spring Oats (Figure 4). It is worth noting that for Spring Oats it is not one of the outer bins that is dominant (which would mean that information is being recorded in one dataset and not the other), but that there are cases for both datasets where individuals are recording data on one form but not in the other. Eventually the outer bins can come to dominate e.g. Bare Fallow (Figure 5). The histograms are also useful in identifying cases where one dataset is not reporting fully for some reason – e.g. Total Potatoes (Figure 6) shows 815 holdings where FDS=0 and JAC>0 versus 290 holdings where FDS>0 and JAC=0. There are also asymmetrical distributions of the inner bins, e.g. Total Crops, Fallow and Set-aside and this reflects the composite nature of the Items (Figure 7).

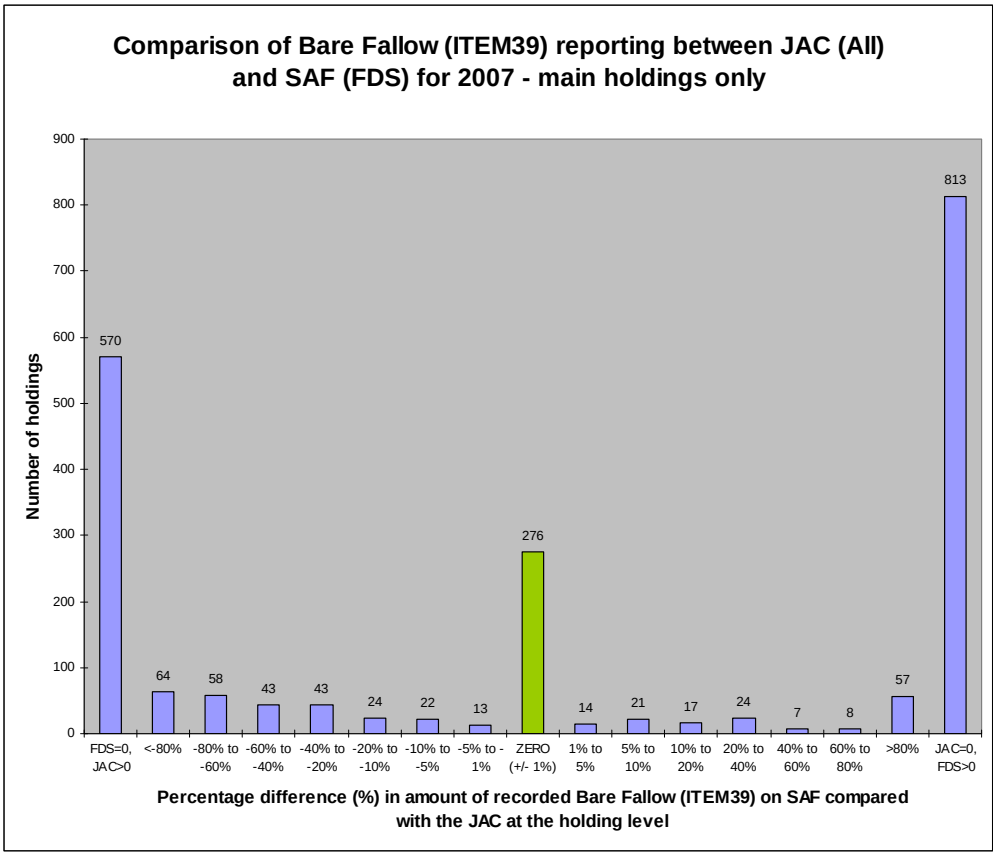

Comparison of Bare Fallow (ITEM39) reporting between JAC (All) and SAF (FDS) for 2007 - main holdings only
Number of holdings
900
800
700
600
500
400
300
200
100
0
570
64
58
43
43
24
22
13
276
14
21
17
24
7
8
57
813
FDS=0, JAC>0
<-80%
-80% to -60%
-60% to -40%
-40% to -20%
-20% to -10%
-10% to -5%
-5% to - 1%
ZERO (+/- 1%)
1% to 5%
5% to 10%
10% to 20%
20% to 40%
40% to 60%
60% to 80%
>80%
JAC=0, FDS>0
Percentage difference (%) in amount of recorded Bare Fallow (ITEM39) on SAF compared with the JAC at the holding level

Figure 15

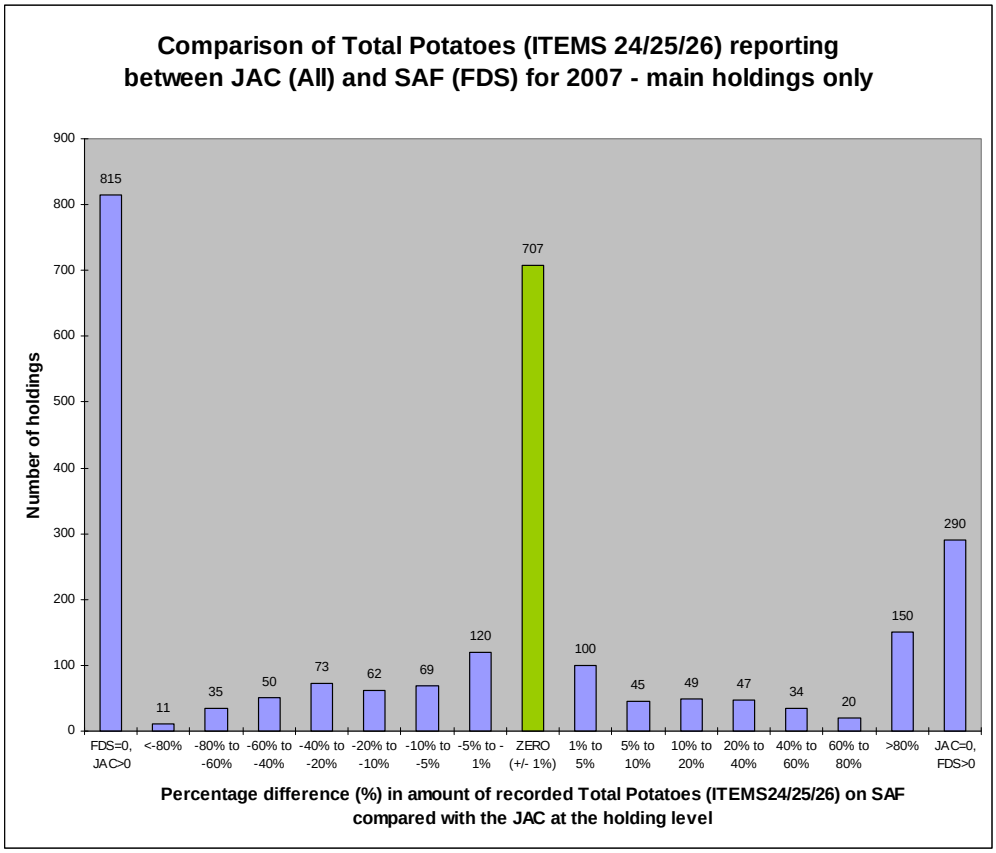


Figure 16

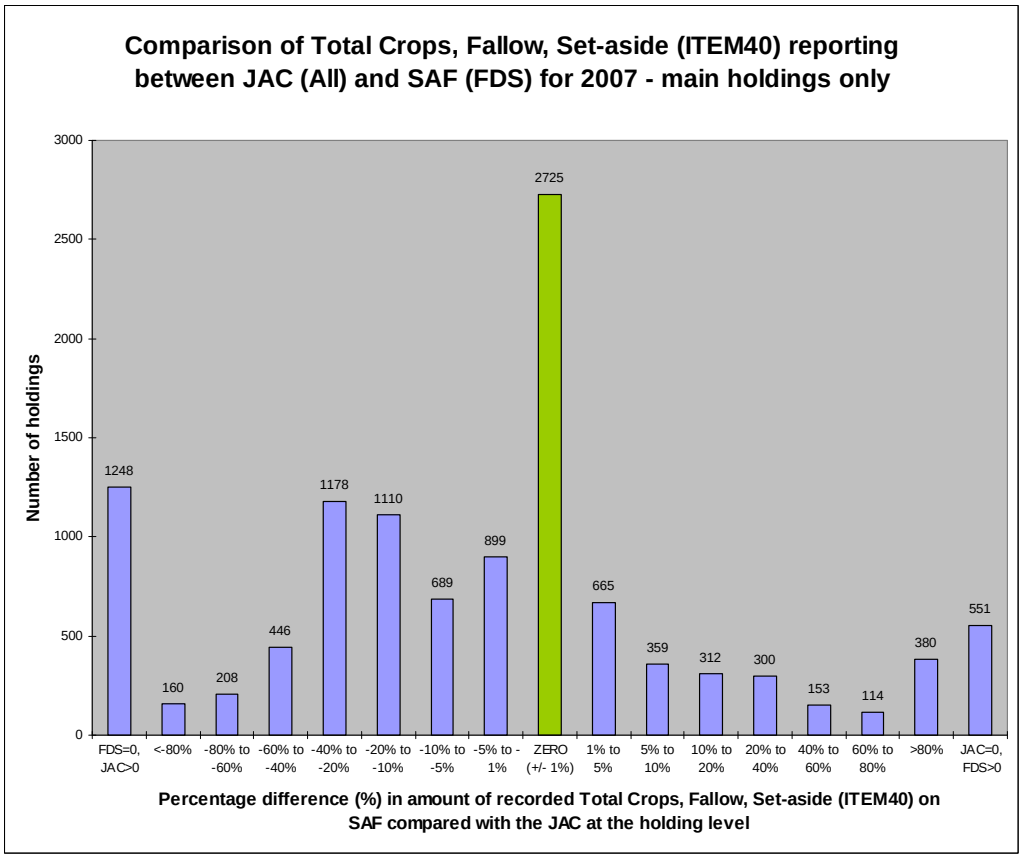


Figure 17

While the Grass Items have similar magnitudes of Diff and AbsDiff to the Crops Items the patterns of the distributions of differences are significantly different. While Grass>= 5 years only has a Diff of 4% the AbsDiff is large at 60% and there are 2006 holdings with SAF values >80% larger than JAC (Figure 8). This may reflect the seasonal renting in of pastures, with renters reporting larger holdings via SAF than the land they own and report in the JAC. This is balanced by significant underestimations in the -40% to -20% and higher categories where the owned land reported in JAC is bigger than SAF claimed land. This phenomena can also be seen (though less strongly) for Grass <5 years and Total Grass. The seasonal renting issue may also contribute to the size of the end bins if a whole holding is rented in or out with returns for one datasets being matched by null values for the other. Where there are units that may not make claims via SAF (e.g. some deer estates) but do return JAC then the left hand bin of the distribution is enlarged – e.g. Rough Grazing (Figure 9). Woodland is heavily under-reported in SAF.

Table 14 - Grass, hay, straw, silage

Item	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Grass for mowing/grazing < 5yrs (ITEM42/44)	298,765	402,347	103,582	256,823	35%	86%
Grass for mowing/grazing >= 5yrs (ITEM43/45)	847,144	877,173	30,029	511,163	4%	60%
Total Grass (ITEM42-45)	1,145,908	1,279,520	133,612	428,295	12%	37%
Total crops and grass (ITEM46)	1,733,185	1,837,533	104,347	478,969	6%	28%
Rough Grazings (ITEM47)	2,864,684	2,541,430	-323,254	952,219	-11%	33%
Woodland (ITEM48)	225,349	113,691	-111,658	179,117	-50%	79%
All land (ITEM50)	4,886,408	4,492,654	-393,754	1,096,653	-8%	22%

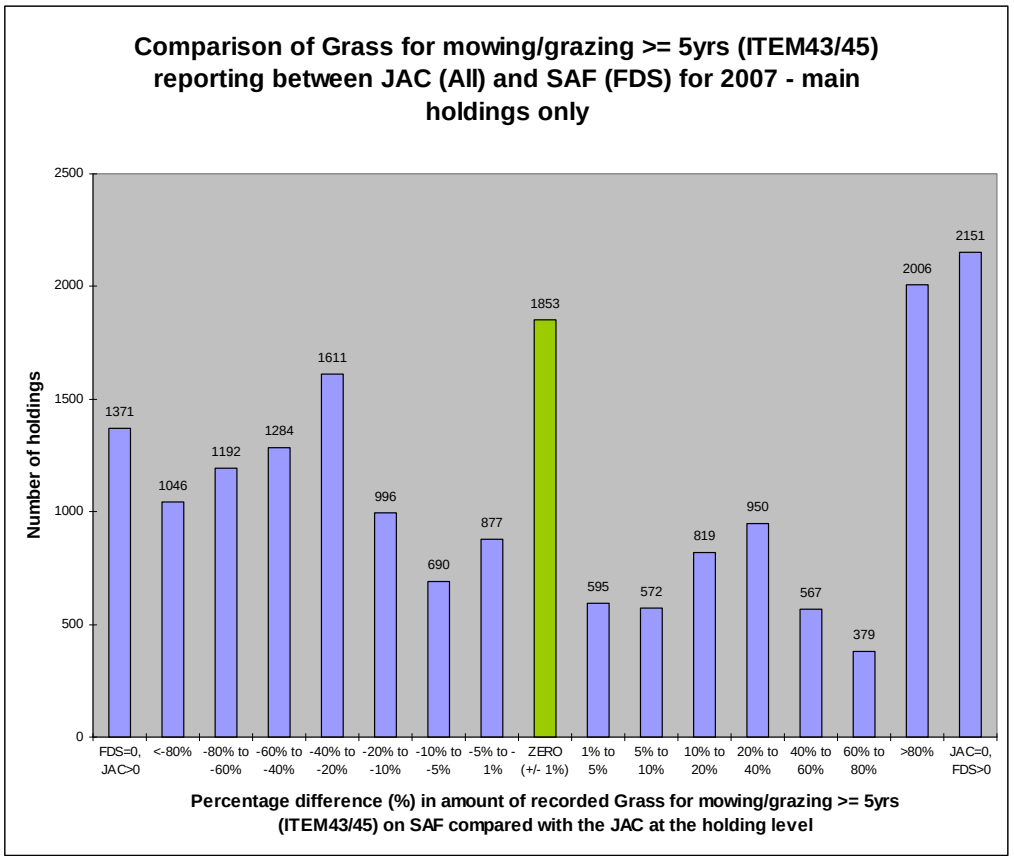


Figure 18

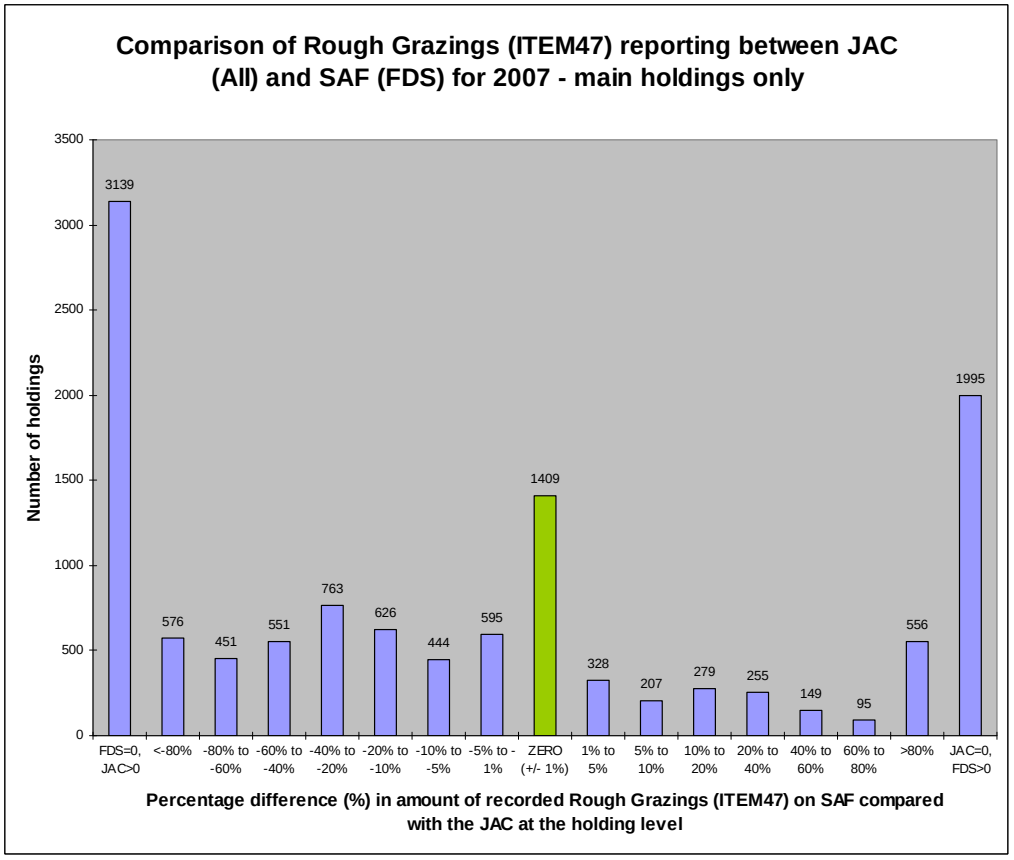


Figure 19

The match for the Veg for human consumption items is poor with JAC consistently higher than SAF returns (Table 3). Notable are the 430 holdings with JAC returns or imputed values but no SAF (Figure 10). This reflects the relatively lower coverage of horticultural crop by SAF as seen in Section 2.

Table 15 - Veg for human consumption

Item	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Peas - human (ITEM52)	3,645	1,926	-1,719	2,732	-47%	75%
Beans - human (ITEM53)	373	300	-74	269	-20%	72%
Turnips/swedes (ITEM56)	1,728	1,095	-633	1,282	-37%	74%
Rhubarb (ITEM65)	42	65	23	26	55%	62%
Various/Other Veg (ITEM55/57-61/63/64/66/67)	5,607	4,112	-1,495	3,326	-27%	59%
Total Veg (ITEM68)	11,395	7,498	-3,897	7,252	-34%	64%

Better matches are made for Soft fruit (Table 4) – but only when there are single crop comparisons being made – e.g. Raspberries and Blackcurrants. Where there are compound classes with several elements and small areas then the matches can be very poor (Mixed/other soft fruit at 708%).

Table 16 - Soft fruit

Item	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Raspberries (ITEM71)	407	485	79	225	19%	55%
Blackcurrants (ITEM72)	360	320	-40	78	-11%	22%
Mixed/other soft fruit (ITEM75)	95	765	670	742	708%	784%
Total soft fruit (ITEM76)	1,633	1,570	-63	716	-4%	44%

For nursery stock the numbers of holdings are small and the distributions this sparse. The match for Bulbs/Flowers/Bedding Plants is adequate – but with many cases of either JAC or SAF returns but fewer with both. The Hardy Nursery Stock is significantly underreported in JAC. This is a definitional issue (the match between the nursery stock items in JAC and the Trees Shrubs code in SAF is weak as it is compound and partial – see Section 1). This weakness is perhaps compounded by the ineligible status of the Trees, Shrubs and Bushes category in SAF that may mean the category is less stringently measured. A new SAF code for nurseries will be introduced in 2008 (since they will in some circumstances become eligible for SFP) and this should ensure a much better match between the two datasets.

Table 17 - Bulbs, flowers, nursery stock

Item	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	460	529	69	170	15%	37%
Hardy Nursery Stock (ITEM80/81/1710/82/83)	162	15,805	15,643	15,953	9636%	9828%
Total Bulbs, Flowers, Nursery (ITEM84)	622	16,334	15,711	16,120	2524%	2590%

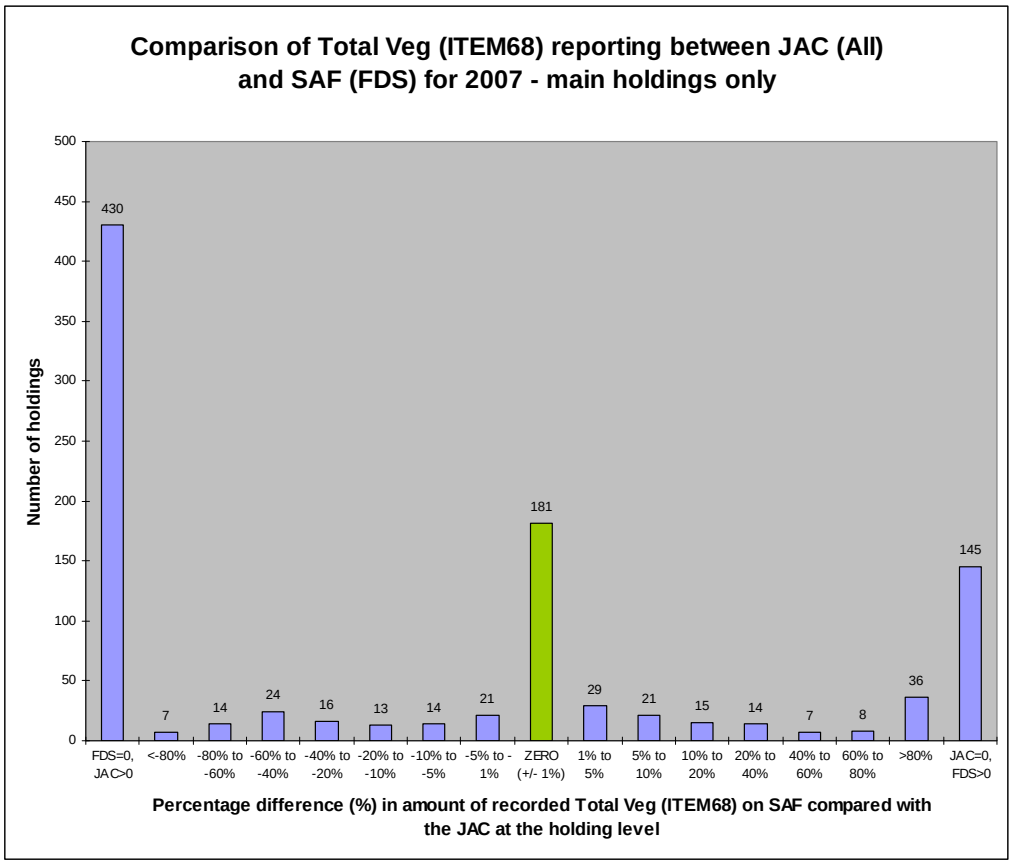


Figure 20

Analytical Services have noted that since crop areas on JAC must be reconciled with the total farm area; this could encourage activities to be recorded under inappropriate items to make the form totals balance. This would occur mainly where it's not clear under which JAC Item a particular crop-growing activity should be recorded. They have also suggested that closer investigation of the differences for crop items may suggest where Census questions might be made less ambiguous or otherwise improved. SAF information, if of sufficient quality and if its relationship to JAC data were sufficiently well understood, might allow such changes to be made without damaging trend information.

For the livestock figures (Table 6) the comparisons are on a business-by-business basis and in most cases only the total figures can be compared since the SAF categories either do not match those of the JAC or the JAC categories are more specific than those recorded in SAF. The Diff figures for some of the Items are on first inspection very close, e.g. Total Pigs (0%) and Beef Cows and Heifers (-3%) – but the AbsDiff figures point to really serious problems with the comparisons (42% and 23% respectively). This is borne out by the distribution plots Figures 11 and 12. For pigs there are a significant number of occasions when for a business SAF has values but JAC does not. This is balanced by several occasions where the numbers of stock are larger in JAC than SAF (-40% to -20% is the peak). It is possible that these differences relate to when livestock numbers are recorded in the two surveys. For the headline figures of Total Cattle and Sheep (Figures 13 and 14) then there is a consistent pattern of larger numbers being reported in JAC (the peak in the –ve value bins) but also a significant number of businesses where there are SAF returns but no JAC. Note also that livestock kept on a seasonal let should be reported by the tenant, but if that tenant is a landless keeper, they will not receive a form and so their livestock will not be captured by JAC. This could be tested by looking at the

holding numbers of SAF submissions not matched with JAC; landless keepers (and only landless keepers) will have holding numbers above 7000.

Table 18 - Pigs, Poultry, Cows, Sheep and Misc. Livestock

Item	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Total pigs (ITEM157)	390,636	389,710	-926	163,820	0%	42%
Total poultry (ITEM170)	2,921,609	3,183,064	261,455	919,191	9%	31%
Dairy cows for milk prod (ITEM100,102,104,106)	220,513	191,771	-28,742	49,870	-13%	23%
Suckler cows (ITEM101,103,105,107)	495,401	480,984	-14,417	112,459	-3%	23%
Other dairy and beef cattle 6-24mths (ITEM114-119)	634,008	822,365	188,357	346,841	30%	55%
Other dairy and beef cattle 24mths+ (ITEM110-113)	89,577	132,927	43,350	124,022	48%	138%
Total cattle (ITEM122)	1,841,203	1,628,047	-213,156	513,336	-12%	28%
Ewes and gimmers (ITEM139)	2,756,803	3,064,267	307,464	605,150	11%	22%
Ewe hoggs and other sheep (ITEM140,141,143,144)	4,286,973	1,530,167	-2,756,806	3,692,116	-64%	86%
Total sheep (ITEM145)	7,119,821	4,594,434	-2,525,387	3,888,281	-35%	55%
Deer (ITEM94)	4,957	4,673	-284	1,488	-6%	30%
Horses/ponies (ITEM95/96)	12,922	17,355	4,433	7,749	34%	60%
Goats (ITEM1712/1713/98)	1,767	1,675	-92	696	-5%	39%
Other livestock (ITEM171)	251	408	157	211	63%	84%

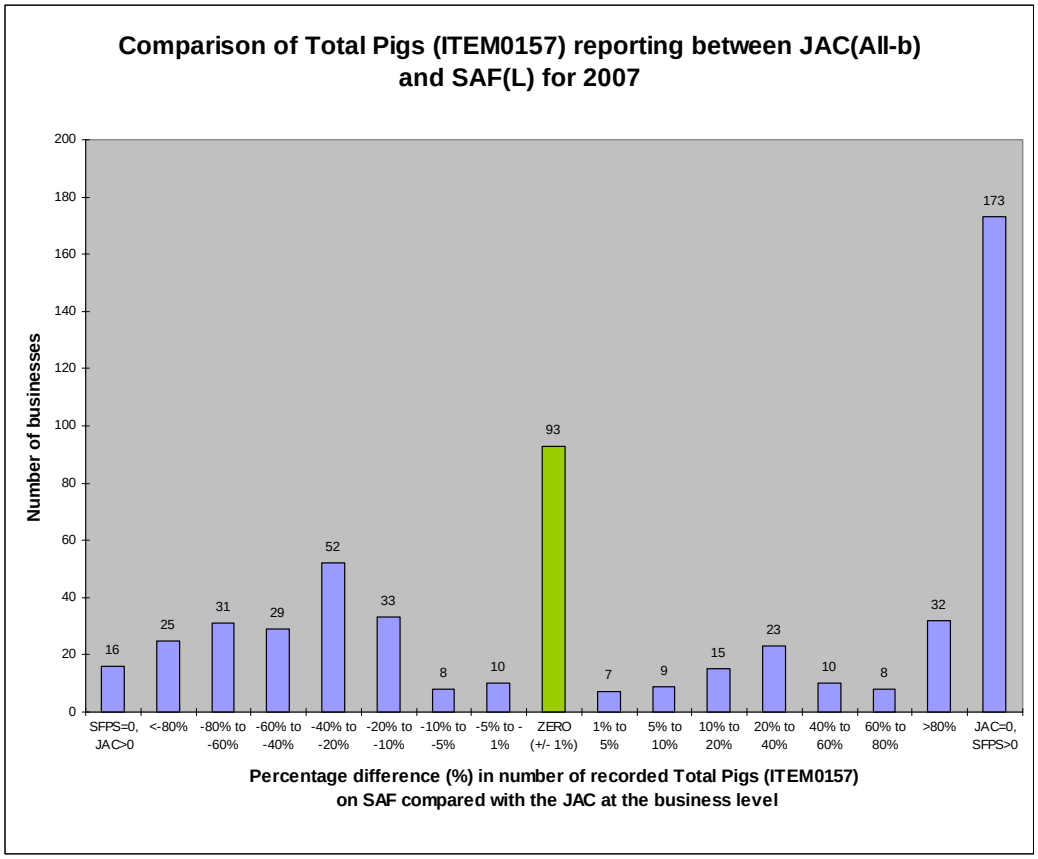


Figure 21

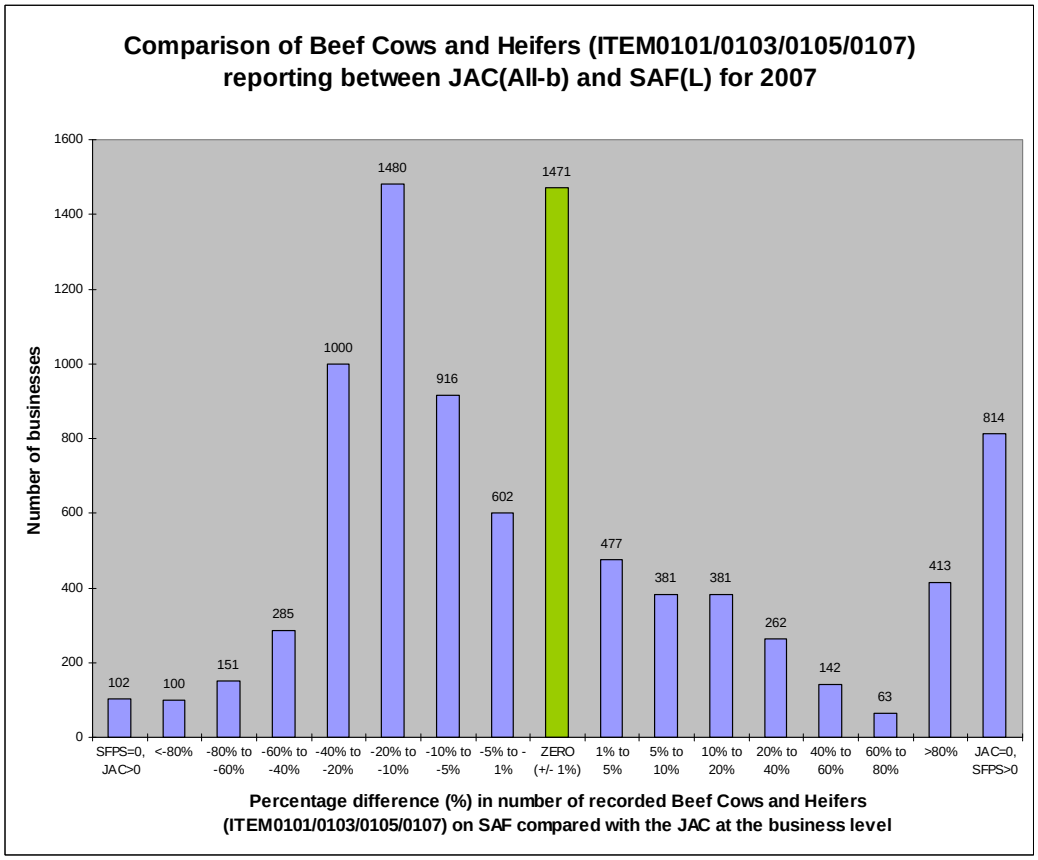


Figure 22

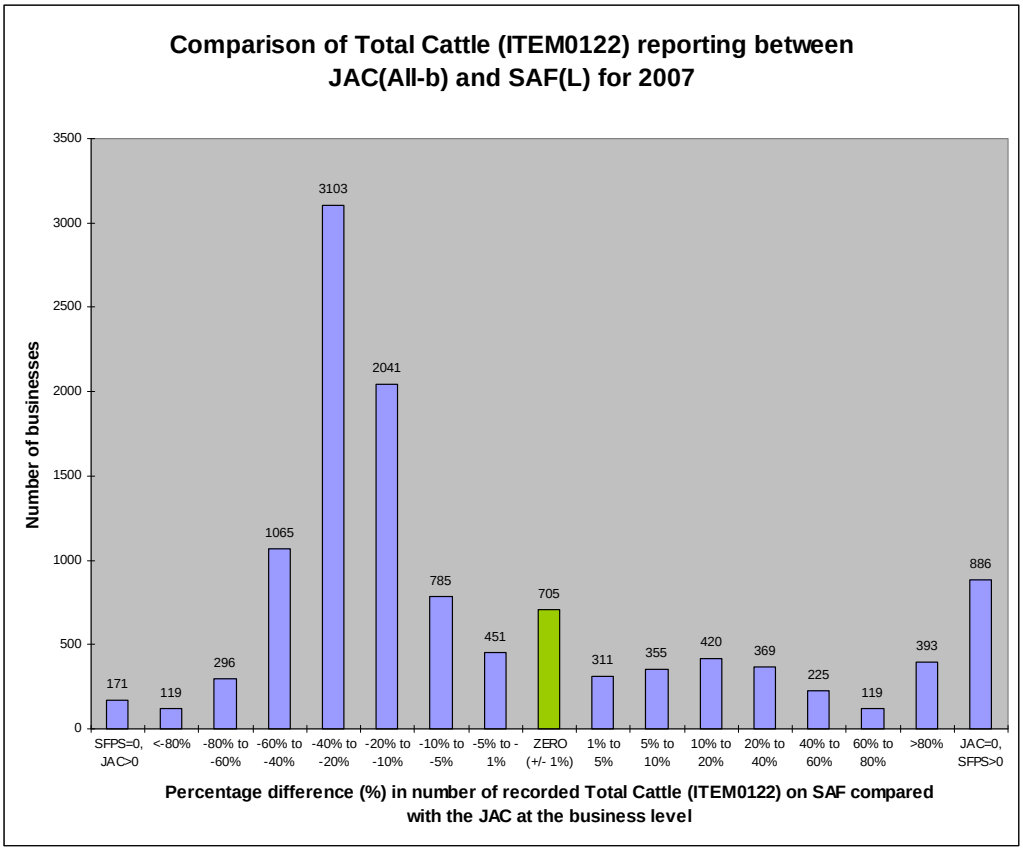


Figure 23

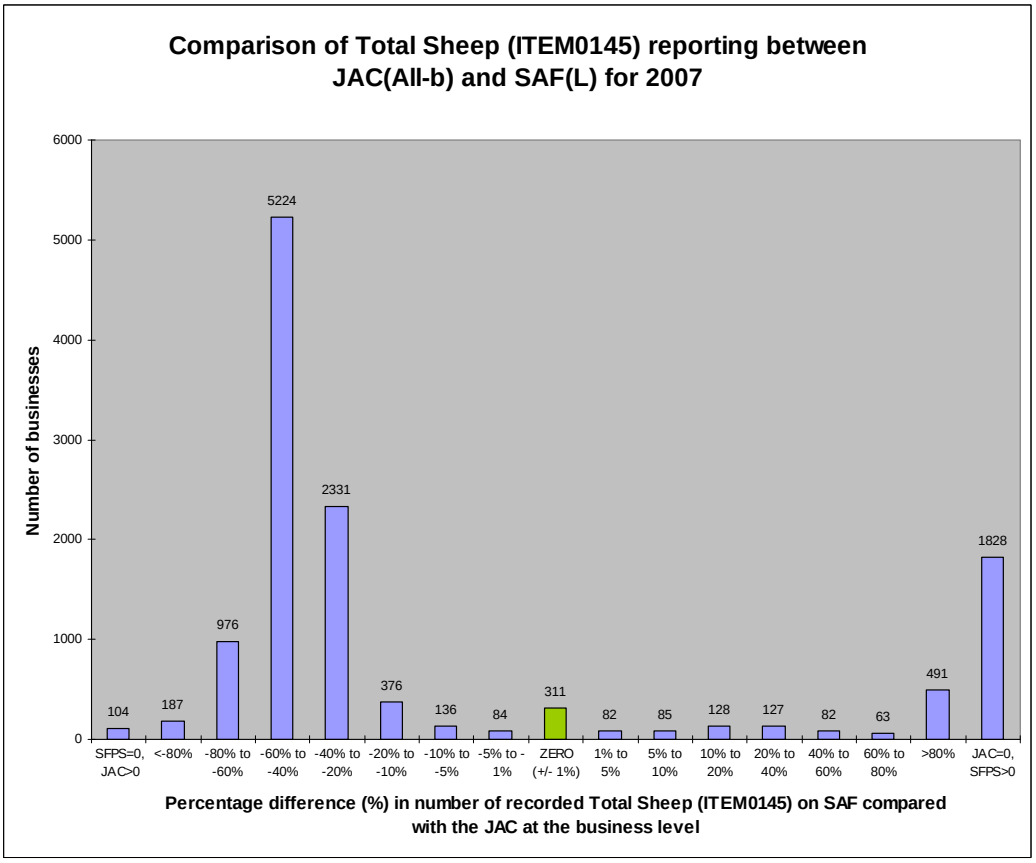


Figure 24

Overall (National) All Data -2007 Only (Main and Minor)

This dataset again presents a national scale view of the individual holding to holding or business to business comparisons – in this case aggregated by main and minor holdings. Note that this analysis is not available for the livestock Items. The consistent pattern is that minor holding show larger and frequently much larger, Diffs and AbsDiffs than do major holdings. Contrast Figure 15 Spring Barley (minor) with Figure 3 for the distributions of %Diff.

Table 19 - Total Crops at the National Scale, Differences

Item	Size	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Set-aside (ITEM3)	main	65,597	57,874	-7,723	26,611	-12%	41%
Set-aside (ITEM3)	minor	530	715	185	852	35%	161%
Triticale (ITEM15)	main	1,221	1,505	284	980	23%	80%
Triticale (ITEM15)	minor	3	32	29	35	849%	1049%
Wheat (ITEM14)	main	100,819	104,744	3,924	24,351	4%	24%
Wheat (ITEM14)	minor	35	538	504	529	1456%	1530%
Winter Barley (ITEM16)	main	51,471	48,870	-2,600	17,029	-5%	33%
Winter Barley (ITEM16)	minor	97	178	81	260	84%	268%
Spring Barley (ITEM18)	main	220,896	221,598	702	50,324	0%	23%
Spring Barley (ITEM18)	minor	476	1,697	1,222	1,606	257%	338%
Winter Oats (ITEM17)	main	6,928	6,394	-534	2,859	-8%	41%
Winter Oats (ITEM17)	minor	30	0	-30	30	-100%	100%
Spring Oats (ITEM20)	main	13,064	12,322	-742	6,558	-6%	50%
Spring Oats (ITEM20)	minor	82	209	126	254	154%	309%
Mix Grain (ITEM22)	main	382	1,723	1,341	1,818	351%	476%
Mix Grain (ITEM22)	minor	9	82	74	89	855%	1035%
Total Cereals (ITEM14-18,20,22)	main	394,781	395,433	652	67,397	0%	17%
Total Cereals (ITEM14-18,20,22)	minor	731	2,655	1,924	2,570	263%	352%
Winter OSR (ITEM19)	main	33,815	33,369	-446	10,048	-1%	30%
Winter OSR (ITEM19)	minor	3	155	151	158	4419%	4619%
Spring OSR (ITEM23)	main	1,877	340	-1,537	1,625	-82%	87%
Spring OSR (ITEM23)	minor	1	0	-1	1	-100%	100%
Total OSR (ITEM19,23)	main	main	35,692	33,708	-1,983	11,299	-6%
Total OSR (ITEM19,23)	minor	minor	4	155	151	159	3636%
Linseed (ITEM21)	main	151	6	-145	158	-96%	104%
Linseed (ITEM21)	minor	0	0	0	0		
Seed Potatoes (ITEM24)	main	11,286	9,569	-1,716	7,562	-15%	67%
Seed Potatoes (ITEM24)	minor	0	48	47	48	15753%	15953%
Ware Potatoes (ITEM25/26)	main	17,335	14,580	-2,755	8,994	-16%	52%
Ware Potatoes (ITEM25/26)	minor	38	125	87	158	227%	413%
Total Potatoes (ITEM24-26)	main	28,621	24,149	-4,471	13,645	-16%	48%
Total Potatoes (ITEM24-26)	minor	39	173	134	206	348%	534%
Beans (ITEM27)	main	3,405	4,108	703	1,659	21%	49%
Beans (ITEM27)	minor	0	0	0	0	0%	
Peas (ITEM28)	main	1,731	1,789	58	1,713	3%	99%
Peas (ITEM28)	minor	3	45	42	47	1602%	1802%
Lupins (ITEM2034)	main	409	840	432	734	106%	180%
Lupins (ITEM2034)	minor	0	6	6	6	0%	
Turnips/swedes (ITEM29)	main	6,209	5,576	-633	2,798	-10%	45%
Turnips/swedes (ITEM29)	minor	81	45	-37	92	-45%	113%
Rape for Stock (ITEM31)	main	2,755	2,424	-331	2,587	-12%	94%
Rape for Stock (ITEM31)	minor	69	30	-38	89	-56%	130%

Item	Size	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Maize (ITEM2059)	main	1,177	1,341	163	692	14%	59%
Maize (ITEM2059)	minor	0	0	0	0	-100%	100%
Kale/Cabbage, Beet, Other (ITEM30/32/34)	main	12,882	7,010	-5,871	12,533	-46%	97%
Kale/Cabbage, Beet, Other (ITEM30/32/34)	minor	334	228	-106	525	-32%	157%
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	main	23,432	17,191	-6,240	15,588	-27%	67%
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	minor	485	309	-176	712	-36%	147%
Vegetables (ITEM35)	main	11,386	7,467	-3,919	7,212	-34%	63%
Vegetables (ITEM35)	minor	9	31	22	39	242%	433%
Orchard fruit (ITEM36)	main	11	5	-7	11	-61%	93%
Orchard fruit (ITEM36)	minor	0	0	0	0	-75%	75%
Soft fruits (ITEM37)	main	1,631	1,570	-61	714	-4%	44%
Soft fruits (ITEM37)	minor	2	0	-2	2	-95%	96%
Other/unspecified crops (ITEM38/41)	main	15,717	3,215	-12,502	15,765	-80%	100%
Other/unspecified crops (ITEM38/41)	minor	191	75	-116	237	-61%	124%
Bare Fallow (ITEM39)	main	9,380	7,037	-2,344	8,248	-25%	88%
Bare Fallow (ITEM39)	minor	1,351	67	-1,284	1,386	-95%	103%
Total crops, fallow, setaside (ITEM40)	main	584,028	553,706	-30,321	109,588	-5%	19%
Total crops, fallow, setaside (ITEM40)	minor	3,249	4,306	1,057	5,459	33%	168%

Table 20 - Grass, hay, straw, silage

Item	Size	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Grass for mowing/grazing < 5yrs (ITEM42/44)	main	279,782	387,324	107,542	233,080	38%	83%
Grass for mowing/grazing < 5yrs (ITEM42/44)	minor	18,983	15,023	-3,960	23,743	-21%	125%
Grass for mowing/grazing >= 5yrs (ITEM43/45)	main	768,234	787,377	19,143	452,115	2%	59%
Grass for mowing/grazing >= 5yrs (ITEM43/45)	minor	78,910	89,796	10,887	59,049	14%	75%
Total Grass (ITEM42-45)	main	1,048,016	1,174,701	126,685	373,554	12%	36%
Total Grass (ITEM42-45)	minor	97,893	104,819	6,927	54,741	7%	56%
Total crops and grass (ITEM46)	main	1,632,043	1,728,407	96,363	423,783	6%	26%
Total crops and grass (ITEM46)	minor	101,142	109,126	7,984	55,186	8%	55%
Rough Grazings (ITEM47)	main	2,788,182	2,466,759	-321,423	876,140	-12%	31%
Rough Grazings (ITEM47)	minor	76,502	74,671	-1,831	76,079	-2%	99%
Woodland (ITEM48)	main	207,148	108,311	-98,836	162,067	-48%	78%
Woodland (ITEM48)	minor	18,201	5,380	-12,821	17,050	-70%	94%
All land (ITEM50)	main	4,686,207	4,303,477	-382,730	1,005,285	-8%	21%
All land (ITEM50)	minor	200,201	189,177	-11,024	91,367	-6%	46%

Table 21 – Veg for human consumption

Item	Size	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Peas - human (ITEM52)	main	3,645	1,908	-1,737	2,713	-48%	74%
Peas - human (ITEM52)	minor	0	18	18	18	0%	
Beans - human (ITEM53)	main	373	300	-74	269	-20%	72%
Beans - human (ITEM53)	minor	0	0	0	0	0%	
Turnips/swedes (ITEM56)	main	1,728	1,095	-633	1,282	-37%	74%
Turnips/swedes (ITEM56)	minor	0	0	0	0	-100%	100%
Rhubarb (ITEM65)	main	42	65	23	26	55%	62%
Rhubarb (ITEM65)	minor	0	0	0	0	0%	
Various/Other Veg (ITEM55/57-61/63/64/66/67)	main	5,598	4,099	-1,498	3,305	-27%	59%
Various/Other Veg (ITEM55/57-61/63/64/66/67)	minor	9	13	4	21	41%	232%
Total Veg (ITEM68)	main	11,386	7,467	-3,919	7,212	-34%	63%
Total Veg (ITEM68)	minor	9	31	22	39	242%	433%

Table 22 - Soft fruit

Item	Size	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Raspberries (ITEM71)	main	407	485	79	225	19%	55%
Raspberries (ITEM71)	minor	0	0	0	0	-100%	100%
Blackcurrants (ITEM72)	main	360	320	-40	78	-11%	22%
Blackcurrants (ITEM72)	minor	0	0	0	0	0%	200%
Mixed/other soft fruit (ITEM75)	main	93	765	672	740	727%	799%
Mixed/other soft fruit (ITEM75)	minor	2	0	-2	2	-95%	95%
Total soft fruit (ITEM76)	main	1,631	1,570	-61	714	-4%	44%
Total soft fruit (ITEM76)	minor	2	0	-2	2	-95%	96%

Table 23 Bulbs, flowers and nursery stock 1

Item	Size	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	main	460	529	69	170	15%	37%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	minor	0	0	0	0	-100%	100%
Hardy Nursery Stock (ITEM80/81/1710/82/83)	main	162	15,073	14,911	15,221	9187%	9379%
Hardy Nursery Stock (ITEM80/81/1710/82/83)	minor	0	732	732	732	2439200%	2439400%
Total Bulbs, Flowers, Nursery (ITEM84)	main	622	15,602	14,980	15,388	2407%	2473%
Total Bulbs, Flowers, Nursery (ITEM84)	minor	0	732	732	732	1219550%	1219750%

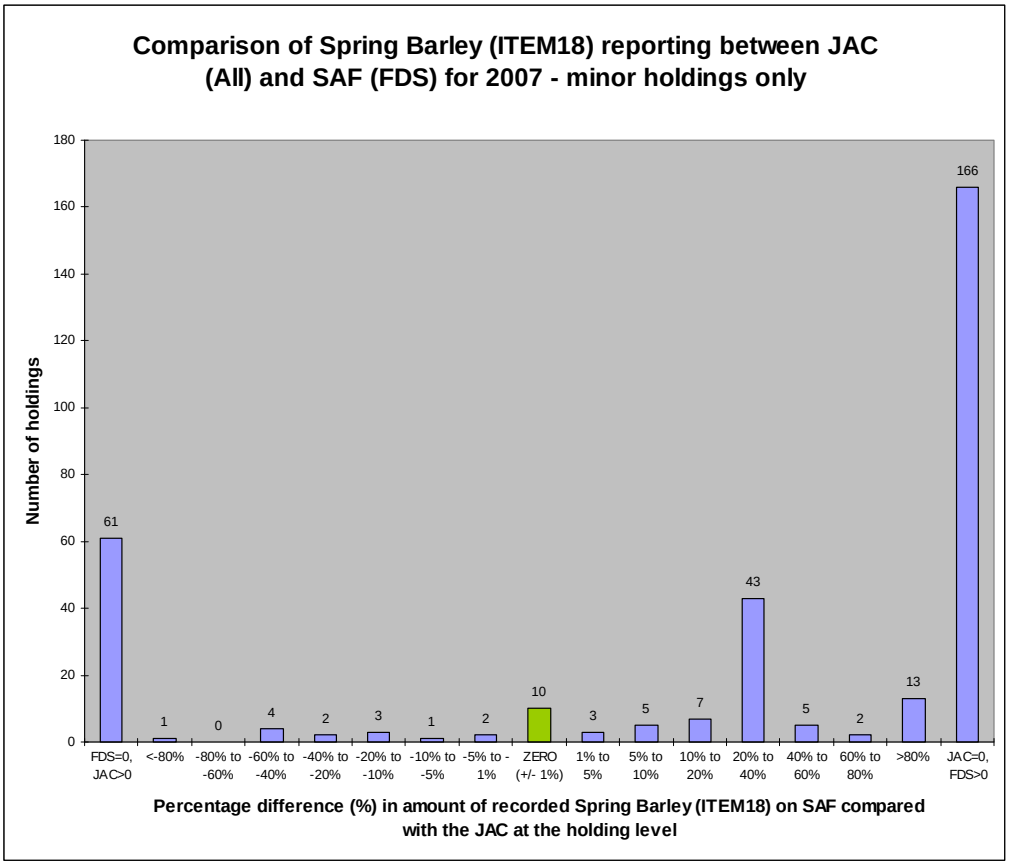


Figure 25

Overall (National) All Data – 2005, 2006, 2007

The following tables present the time series of national data for the years 2005-2007 (note for some of the livestock Items the required information is not available in certain years). For crops there is a remarkable degree of consistency across time, with no flips from positive to negative except where the differences are very small e.g. Spring Barley between -1% and +1%. For the more extensive crops the changes are smaller but for some of the less extensive crops there can be larger changes – e.g. Triticale and Lupins. The year-to-year consistency is maintained for the Grass, hay, straw and silage classes in all cases except for woodland where there has been a decrease in the Diff and AbsDiff in 2007. The data is nosier for the remaining land based items with small changes having potentially large effects with patterns being difficult to discern or explain. For livestock Items there can be good consistency for simple overall categories e.g, Total Pigs, but for classes with more complex or compound definitions there can be significant “jumps” in the data series e.g. Beef cows and Heifers.

Table 24 - Total Crops at the National Scale, 005 to 2007, Differences

Item	Year	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Set-aside (ITEM3)	2005	66,582	58,116	-8,466	20,695	-13%	31%
Set-aside (ITEM3)	2006	65,140	59,772	-5,369	21,848	-8%	34%
Set-aside (ITEM3)	2007	66,127	58,590	-7,538	27,464	-11%	42%
Triticale (ITEM15)	2005	1,116	1,118	2	970	0%	87%
Triticale (ITEM15)	2006	1,284	1,584	300	1,388	23%	108%
Triticale (ITEM15)	2007	1,225	1,537	312	1,015	26%	83%
Wheat (ITEM14)	2005	92,777	91,515	-1,262	21,332	-1%	23%
Wheat (ITEM14)	2006	97,637	101,795	4,158	23,377	4%	24%
Wheat (ITEM14)	2007	100,854	105,282	4,428	24,881	4%	25%
Winter Barley (ITEM16)	2005	49,547	42,525	-7,022	17,014	-14%	34%
Winter Barley (ITEM16)	2006	52,267	48,646	-3,621	18,453	-7%	35%
Winter Barley (ITEM16)	2007	51,568	49,049	-2,519	17,289	-5%	34%
Spring Barley (ITEM18)	2005	235,508	233,559	-1,949	49,736	-1%	21%
Spring Barley (ITEM18)	2006	215,301	213,359	-1,943	49,424	-1%	23%
Spring Barley (ITEM18)	2007	221,371	223,295	1,924	51,930	1%	23%
Winter Oats (ITEM17)	2005	4,779	3,506	-1,273	2,298	-27%	48%
Winter Oats (ITEM17)	2006	6,447	6,056	-391	3,154	-6%	49%
Winter Oats (ITEM17)	2007	6,958	6,394	-564	2,888	-8%	42%
Spring Oats (ITEM20)	2005	14,251	12,524	-1,727	7,102	-12%	50%
Spring Oats (ITEM20)	2006	15,436	15,165	-270	7,700	-2%	50%
Spring Oats (ITEM20)	2007	13,146	12,531	-615	6,812	-5%	52%
Mix Grain (ITEM22)	2005	431	2,318	1,888	2,518	438%	585%
Mix Grain (ITEM22)	2006	449	2,962	2,513	3,064	560%	683%
Mix Grain (ITEM22)	2007	391	1,806	1,415	1,907	362%	488%
Total Cereals (ITEM14-18,20,22)	2005	398,407	384,746	-13,662	60,798	-3%	15%
Total Cereals (ITEM14-18,20,22)	2006	388,821	386,605	-2,216	65,434	-1%	17%
Total Cereals (ITEM14-18,20,22)	2007	395,512	398,088	2,576	69,967	1%	18%
Winter OSR (ITEM19)	2005	31,313	30,159	-1,154	8,052	-4%	26%
Winter OSR (ITEM19)	2006	30,382	29,720	-662	9,050	-2%	30%
Winter OSR (ITEM19)	2007	33,818	33,523	-295	10,206	-1%	30%
Spring OSR (ITEM23)	2005	3,024	1,353	-1,671	2,399	-55%	79%
Spring OSR (ITEM23)	2006	2,613	1,028	-1,585	2,198	-61%	84%
Spring OSR (ITEM23)	2007	1,878	340	-1,538	1,626	-82%	87%
Total OSR (ITEM19,23)	2005	34,337	31,513	-2,824	9,766	-8%	28%
Total OSR (ITEM19,23)	2006	32,995	30,748	-2,247	10,449	-7%	32%
Total OSR (ITEM19,23)	2007	35,696	33,863	-1,833	11,457	-5%	32%
Linseed (ITEM21)	2005	295	35	-260	289	-88%	98%
Linseed (ITEM21)	2006	227	9	-218	225	-96%	99%
Linseed (ITEM21)	2007	151	6	-145	158	-96%	104%
Seed Potatoes (ITEM24)	2005	10,783	6,710	-4,073	7,224	-38%	67%
Seed Potatoes (ITEM24)	2006	11,286	9,172	-2,114	7,759	-19%	69%
Seed Potatoes (ITEM24)	2007	11,286	9,617	-1,669	7,610	-15%	67%
Ware Potatoes (ITEM25/26)	2005	16,013	12,278	-3,735	8,805	-23%	55%
Ware Potatoes (ITEM25/26)	2006	16,191	13,457	-2,734	8,906	-17%	55%
Ware Potatoes (ITEM25/26)	2007	17,373	14,705	-2,668	9,152	-15%	53%
Total Potatoes (ITEM24-26)	2005	26,796	18,988	-7,808	13,576	-29%	51%
Total Potatoes (ITEM24-26)	2006	27,477	22,629	-4,848	13,776	-18%	50%
Total Potatoes (ITEM24-26)	2007	28,659	24,322	-4,337	13,850	-15%	48%
Beans (ITEM27)	2005	3,285	3,767	482	1,260	15%	38%
Beans (ITEM27)	2006	4,397	5,431	1,034	2,308	24%	52%

Item	Year	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Beans (ITEM27)	2007	3,405	4,108	703	1,659	21%	49%
Peas (ITEM28)	2005	1,314	1,532	218	1,841	17%	140%
Peas (ITEM28)	2006	1,451	1,751	300	1,723	21%	119%
Peas (ITEM28)	2007	1,733	1,833	100	1,760	6%	102%
Lupins (ITEM2034)	2005	776	1,064	288	613	37%	79%
Lupins (ITEM2034)	2006	572	1,091	519	822	91%	144%
Lupins (ITEM2034)	2007	409	846	438	740	107%	181%
Turnips/swedes (ITEM29)	2005	7,233	6,447	-786	3,198	-11%	44%
Turnips/swedes (ITEM29)	2006	7,059	6,633	-426	3,378	-6%	48%
Turnips/swedes (ITEM29)	2007	6,291	5,621	-669	2,890	-11%	46%
Rape for Stock (ITEM31)	2005	3,000	2,560	-440	2,678	-15%	89%
Rape for Stock (ITEM31)	2006	2,974	2,600	-374	2,633	-13%	89%
Rape for Stock (ITEM31)	2007	2,824	2,454	-370	2,676	-13%	95%
Maize (ITEM2059)	2005	735	1,282	547	716	74%	97%
Maize (ITEM2059)	2006	881	1,233	352	605	40%	69%
Maize (ITEM2059)	2007	1,178	1,341	163	692	14%	59%
Kale/Cabbage, Beet, Other (ITEM30/32/34)	2005	12,379	6,989	-5,390	12,119	-44%	98%
Kale/Cabbage, Beet, Other (ITEM30/32/34)	2006	13,635	7,174	-6,461	12,752	-47%	94%
Kale/Cabbage, Beet, Other (ITEM30/32/34)	2007	13,216	7,239	-5,978	13,059	-45%	99%
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	2005	24,124	18,342	-5,781	15,729	-24%	65%
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	2006	25,121	18,731	-6,390	16,086	-25%	64%
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	2007	23,917	17,501	-6,416	16,301	-27%	68%
Vegetables (ITEM35)	2005	10,194	6,948	-3,246	5,974	-32%	59%
Vegetables (ITEM35)	2006	10,874	8,194	-2,680	7,172	-25%	66%
Vegetables (ITEM35)	2007	11,395	7,498	-3,897	7,252	-34%	64%
Orchard fruit (ITEM36)	2005	10	2	-8	9	-81%	94%
Orchard fruit (ITEM36)	2006	12	3	-10	11	-79%	89%
Orchard fruit (ITEM36)	2007	12	5	-7	11	-61%	93%
Soft fruits (ITEM37)	2005	1,522	1,335	-187	530	-12%	35%
Soft fruits (ITEM37)	2006	1,530	1,490	-40	552	-3%	36%
Soft fruits (ITEM37)	2007	1,633	1,570	-63	716	-4%	44%
Other/unspecified crops (ITEM38/41)	2005	9,995	1,295	-8,700	10,208	-87%	102%
Other/unspecified crops (ITEM38/41)	2006	14,012	2,578	-11,435	14,247	-82%	102%
Other/unspecified crops (ITEM38/41)	2007	15,908	3,290	-12,618	16,001	-79%	101%
Bare Fallow (ITEM39)	2005	14,435	13,378	-1,057	12,517	-7%	87%
Bare Fallow (ITEM39)	2006	13,131	11,728	-1,403	11,566	-11%	88%
Bare Fallow (ITEM39)	2007	10,731	7,104	-3,627	9,634	-34%	90%
Total crops, fallow, setaside (ITEM40)	2005	586,626	540,979	-45,647	93,758	-8%	16%
Total crops, fallow, setaside (ITEM40)	2006	578,549	551,140	-27,408	101,884	-5%	18%
Total crops, fallow, setaside (ITEM40)	2007	587,277	558,013	-29,265	115,047	-5%	20%

Table 25 - Grass, hay, straw, silage

Item	Year	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Grass for mowing/grazing < 5yrs (ITEM42/44)	2005	295,587	375,303	79,716	231,852	27%	78%
Grass for mowing/grazing < 5yrs (ITEM42/44)	2006	301,301	403,809	102,508	251,289	34%	83%
Grass for mowing/grazing < 5yrs (ITEM42/44)	2007	298,765	402,347	103,582	256,823	35%	86%
Grass for mowing/grazing >= 5yrs (ITEM43/45)	2005	795,656	742,450	-53,206	443,262	-7%	56%
Grass for mowing/grazing >= 5yrs (ITEM43/45)	2006	826,261	850,180	23,918	482,231	3%	58%
Grass for mowing/grazing >= 5yrs (ITEM43/45)	2007	847,144	877,173	30,029	511,163	4%	60%
Total Grass (ITEM42-45)	2005	1,091,243	1,117,753	26,510	355,089	2%	33%
Total Grass (ITEM42-45)	2006	1,127,563	1,253,989	126,426	391,526	11%	35%
Total Grass (ITEM42-45)	2007	1,145,908	1,279,520	133,612	428,295	12%	37%
Total crops and grass (ITEM46)	2005	1,677,869	1,658,732	-19,136	389,495	-1%	23%
Total crops and grass (ITEM46)	2006	1,706,112	1,805,129	99,017	427,698	6%	25%
Total crops and grass (ITEM46)	2007	1,733,185	1,837,533	104,347	478,969	6%	28%
Rough Grazings (ITEM47)	2005	2,626,739	2,117,554	-509,185	890,155	-19%	34%
Rough Grazings (ITEM47)	2006	2,799,690	2,330,046	-469,645	842,157	-17%	30%
Rough Grazings (ITEM47)	2007	2,864,684	2,541,430	-323,254	952,219	-11%	33%
Woodland (ITEM48)	2005	170,633	12,500	-158,133	169,342	-93%	99%
Woodland (ITEM48)	2006	189,690	15,327	-174,363	187,969	-92%	99%
Woodland (ITEM48)	2007	225,349	113,691	-111,658	179,117	-50%	79%
All land (ITEM50)	2005	4,543,966	3,788,786	-755,180	1,118,581	-17%	25%
All land (ITEM50)	2006	4,764,958	4,150,502	-614,456	1,009,088	-13%	21%
All land (ITEM50)	2007	4,886,408	4,492,654	-393,754	1,096,653	-8%	22%

Table 26 - Veg for human consumption

Item	Year	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Peas - human (ITEM52)	2005	3,094	1,706	-1,389	1,990	-45%	64%
Peas - human (ITEM52)	2006	3,698	2,067	-1,631	2,882	-44%	78%
Peas - human (ITEM52)	2007	3,645	1,926	-1,719	2,732	-47%	75%
Beans - human (ITEM53)	2005	279	182	-97	242	-35%	87%
Beans - human (ITEM53)	2006	295	181	-114	197	-39%	67%
Beans - human (ITEM53)	2007	373	300	-74	269	-20%	72%
Turnips/swedes (ITEM56)	2005	1,565	1,077	-488	999	-31%	64%
Turnips/swedes (ITEM56)	2006	1,620	1,594	-26	1,237	-2%	76%
Turnips/swedes (ITEM56)	2007	1,728	1,095	-633	1,282	-37%	74%
Rhubarb (ITEM65)	2005	77	102	25	28	33%	36%
Rhubarb (ITEM65)	2006	28	31	3	6	10%	20%
Rhubarb (ITEM65)	2007	42	65	23	26	55%	62%
Various/Other Veg (ITEM55/57-61/63/64/66/67)	2005	5,178	3,881	-1,297	3,110	-25%	60%
Various/Other Veg (ITEM55/57-61/63/64/66/67)	2006	5,233	4,321	-912	3,386	-17%	65%
Various/Other Veg (ITEM55/57-61/63/64/66/67)	2007	5,607	4,112	-1,495	3,326	-27%	59%
Total Veg (ITEM68)	2005	10,194	6,948	-3,246	5,974	-32%	59%
Total Veg (ITEM68)	2006	10,874	8,194	-2,680	7,172	-25%	66%
Total Veg (ITEM68)	2007	11,395	7,498	-3,897	7,252	-34%	64%

Table 27 - Soft fruit

Item	Year	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Raspberries (ITEM71)	2005	409	398	-11	198	-3%	48%
Raspberries (ITEM71)	2006	349	446	97	251	28%	72%
Raspberries (ITEM71)	2007	407	485	79	225	19%	55%
Blackcurrants (ITEM72)	2005	417	335	-82	89	-20%	21%
Blackcurrants (ITEM72)	2006	393	303	-90	110	-23%	28%
Blackcurrants (ITEM72)	2007	360	320	-40	78	-11%	22%
Mixed/other soft fruit (ITEM75)	2005	52	602	549	582	1048%	1110%
Mixed/other soft fruit (ITEM75)	2006	59	741	682	722	1147%	1215%
Mixed/other soft fruit (ITEM75)	2007	95	765	670	742	708%	784%
Total soft fruit (ITEM76)	2005	1,522	1,335	-187	530	-12%	35%
Total soft fruit (ITEM76)	2006	1,530	1,490	-40	552	-3%	36%
Total soft fruit (ITEM76)	2007	1,633	1,570	-63	716	-4%	44%

Table 28: Bulbs, flowers, nursery stock

Item	Year	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	2005	516	650	135	175	26%	34%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	2006	525	680	156	267	30%	51%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	2007	460	529	69	170	15%	37%
Hardy Nursery Stock (ITEM80/81/1710/82/83)	2005	88	0	-88	88	-100%	100%
Hardy Nursery Stock (ITEM80/81/1710/82/83)	2006	141	4,480	4,338	4,621	3072%	3272%
Hardy Nursery Stock (ITEM80/81/1710/82/83)	2007	162	15,805	15,643	15,953	9636%	9828%
Total Bulbs, Flowers, Nursery (ITEM84)	2005	604	650	47	250	8%	41%
Total Bulbs, Flowers, Nursery (ITEM84)	2006	666	5,160	4,494	4,875	675%	732%
Total Bulbs, Flowers, Nursery (ITEM84)	2007	622	16,334	15,711	16,120	2524%	2590%

Table 29 - Pigs, Poultry, Cows, Sheep and Misc. Livestock

Item	Year	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Total pigs (ITEM157)	2006	390,326	337,757	-52,569	183,391	-13%	47%
Total pigs (ITEM157)	2007	390,636	389,710	-926	163,820	0%	42%
Total poultry (ITEM170)	2006	2,755,682	3,408,842	653,160	1,241,868	24%	45%
Total poultry (ITEM170)	2007	2,921,609	3,183,064	261,455	919,191	9%	31%
Dairy cows for milk prod (ITEM100,102,104,106)	2006	224,031	306,160	82,129	96,295	37%	43%
Dairy cows for milk prod (ITEM100,102,104,106)	2007	220,513	191,771	-28,742	49,870	-13%	23%
Suckler cows (ITEM101,103,105,107)	2006	503,621	1,315,001	811,380	832,966	161%	165%
Suckler cows (ITEM101,103,105,107)	2007	495,401	480,984	-14,417	112,459	-3%	23%
Other dairy and beef cattle 6-24mths (ITEM114-119)	2007	634,008	822,365	188,357	346,841	30%	55%
Other dairy and beef cattle 24mths+ (ITEM110-113)	2007	89,577	132,927	43,350	124,022	48%	138%
Total cattle (ITEM122)	2006	1,830,895	1,621,161	-209,734	516,608	-11%	28%
Total cattle (ITEM122)	2007	1,841,203	1,628,047	-213,156	513,336	-12%	28%
Ewes and gimmers (ITEM139)	2006	2,748,077	3,120,643	372,566	658,354	14%	24%
Ewes and gimmers (ITEM139)	2007	2,756,803	3,064,267	307,464	605,150	11%	22%
Ewe hoggs and other sheep (ITEM140,141,143,144)	2006	4,152,996	1,410,650	-2,742,346	3,539,454	-66%	85%
Ewe hoggs and other sheep (ITEM140,141,143,144)	2007	4,286,973	1,530,167	-2,756,806	3,692,116	-64%	86%
Total sheep (ITEM145)	2006	6,996,654	4,531,293	-2,465,361	3,758,997	-35%	54%
Total sheep (ITEM145)	2007	7,119,821	4,594,434	-2,525,387	3,888,281	-35%	55%
Deer (ITEM94)	2006	4,818	5,184	366	1,952	8%	41%

Item	Year	JAC	SAF/FDS	Diff	AbsDiff	Diff%	AbsDiff%
Deer (ITEM94)	2007	4,957	4,673	-284	1,488	-6%	30%
Horses/ponies (ITEM95/96)	2006	11,808	16,304	4,496	6,944	38%	59%
Horses/ponies (ITEM95/96)	2007	12,922	17,355	4,433	7,749	34%	60%
Goats (ITEM1712/1713/98)	2006	2,155	2,473	318	870	15%	40%
Goats (ITEM1712/1713/98)	2007	1,767	1,675	-92	696	-5%	39%
Other livestock (ITEM171)	2006	232	377	145	213	63%	92%
Other livestock (ITEM171)	2007	251	408	157	211	63%	84%

4.3.2. Aggregated Comparison

The outcomes of the aggregated comparisons are again in all cases presented by commodity grouping and then ordered by JAC Items. Additional summary items suggested by SG Analytical Services are italicised. For Section 4 each table presents the Item, Year, the JAC (All) total, the SAF(FDS or L) total, the difference (Diff), and the difference as a percentage of JAC (All) total (%Diff). These figures are generated independently for each dataset at the level of aggregation required and then compared.

Overall (National) All Data – 2007 Only

These tables show only minor differences from the Diff column in Section 3 with no discernable pattern to these differences.

Table 30 – Overall National Data, 2007 only

Item	Year	JAC	SAF/FDS	Diff	Diff%
Set-aside (ITEM3)	2007	67,933.21	59,293.39	-8,639.82	-13%
Triticale (ITEM15)	2007	1,236.90	1,574.43	337.53	27%
Wheat (ITEM14)	2007	102,743.63	106,134.25	3,390.62	3%
Winter Barley (ITEM16)	2007	52,625.01	49,585.94	-3,039.07	-6%
Spring Barley (ITEM18)	2007	226,019.13	224,809.83	-1,209.30	-1%
Winter Oats (ITEM17)	2007	7,234.09	6,436.45	-797.64	-11%
Spring Oats (ITEM20)	2007	13,634.02	12,726.89	-907.13	-7%
Mix Grain (ITEM22)	2007	404.92	2,291.79	1,886.88	466%
Total Cereals (ITEM14-18,20,22)	2007	403,897.68	401,267.79	-2,629.89	-1%
Winter OSR (ITEM19)	2007	34276.00	33889.53	-386.47	-1%
Spring OSR (ITEM23)	2007	2057.86	339.77	-1718.09	-83%
Total OSR (ITEM19,23)	2007	36333.86	34229.30	-2104.56	-6%
Linseed (ITEM21)	2007	237.64	6.30	-231.34	-97%
Seed Potatoes (ITEM24)	2007	11,450.14	9,722.86	-1,727.28	-15%
Ware Potatoes (ITEM25/26)	2007	17,867.91	14,806.21	-3,061.70	-17%
Total Potatoes (ITEM24-26)	2007	29,318.05	24,529.07	-4,788.98	-16%
Beans (ITEM27)	2007	3,506.83	4,156.44	649.61	19%
Peas (ITEM28)	2007	1,790.27	1,833.44	43.17	2%
Lupins (ITEM2034)	2007	409.95	862.23	452.28	110%
Turnips/swedes (ITEM29)	2007	6,486.00	5,652.51	-833.49	-13%
Rape for Stock (ITEM31)	2007	2,943.53	2,462.21	-481.32	-16%
Maize (ITEM2059)	2007	1,179.61	1,350.46	170.85	14%
Kale/Cabbage, Beet, Other (ITEM30/32/34)	2007	13,702.81	7,327.06	-6,375.75	-47%
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	2007	24,721.90	17,654.47	-7,067.43	-29%
Vegetables (ITEM35)	2007	11,778.37	7,588.69	-4,189.68	-36%
Orchard fruit (ITEM36)	2007	45.03	4.60	-40.43	-90%
Soft fruits (ITEM37)	2007	1,786.96	1,570.24	-216.72	-12%
Other/unspecified crops (ITEM38/41)	2007	18,427.17	3,299.11	-15,128.06	-82%
Bare Fallow (ITEM39)	2007	15,085.26	7,314.83	-7,770.43	-52%
Total crops, fallow, setaside (ITEM40)	2007	606167.11	563469.22	-42697.89	-7%

For cereals the overall picture has a difference of 1%, but as can be seen in Figure 16 there are some differences for particular Items, with SAF showing higher totals for Wheat and Mixed Gains but lower totals for Winter and Spring Barley.

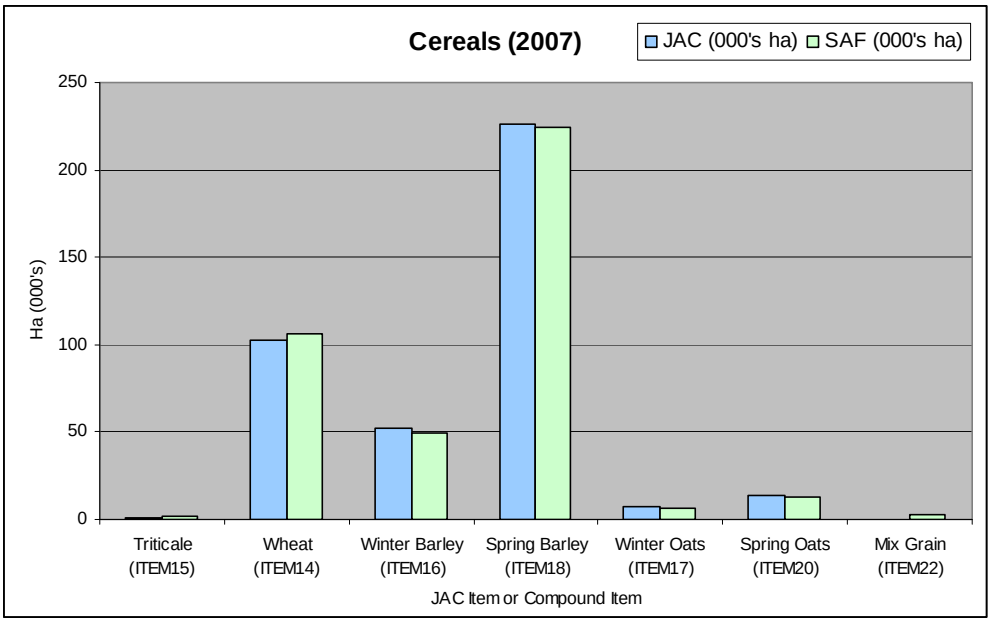


Figure 26

For potatoes there is an apparent under reporting in SAF with JAC 16% or 4,800 ha larger.

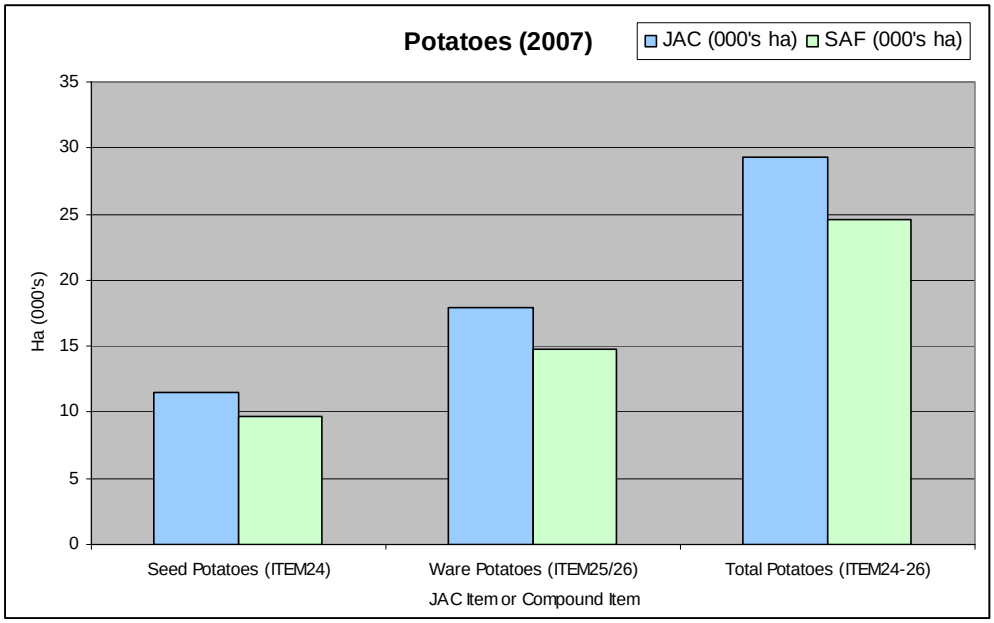


Figure 27

Where single crop Items can be compared (see Figure 18) then the JAC and SAF show a degree of conformity (mid teens for percentage differences are typical and in some cases low percentages can be achieved e.g. peas at 2%). This conformity may tend to breakdown for Items with smaller areas such as Lupins where percentage errors can be large (110%). For compound or “catch all” Items such as Other/unspecified crops (see Figure 19) the correspondence between Items is poorer partly since the areas are smaller

and any errors tend to be magnified, there may be differences in the reporting of such items and there may also be significant differences that result from how the categories are interpreted by those making the returns.

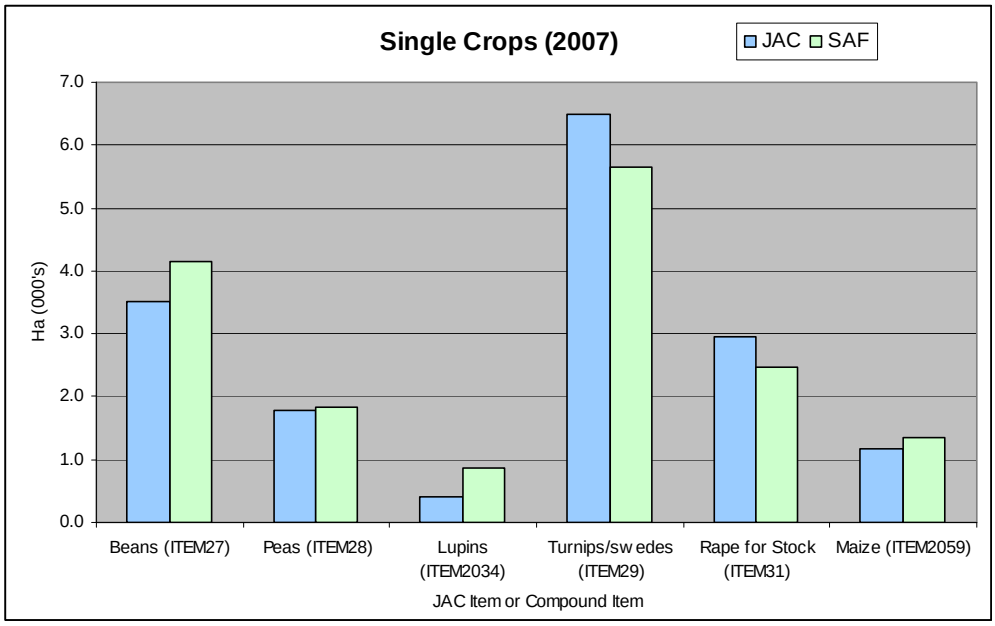


Figure 28

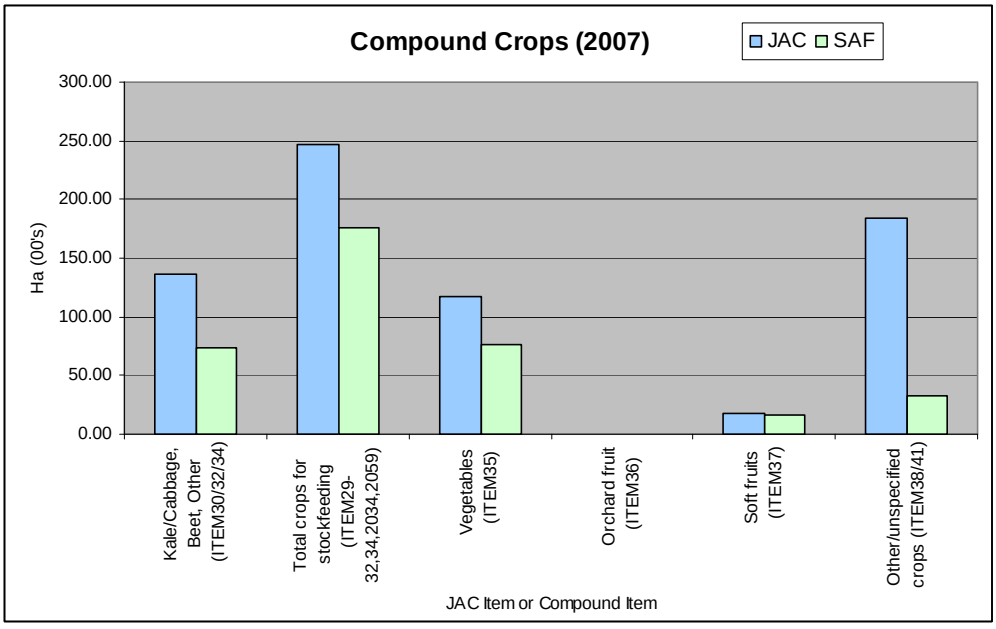


Figure 29

Differences between the grass and grazing Items are interesting since they give an insight into the differences in the holding populations for the two datasets. The most dramatic difference in terms of area is for rough grazings with a -845k ha difference (-25%). This almost certainly reflects the fact that there are holdings in JAC that are not returning SAF since they have not to date claimed "agricultural" payments – e.g. sporting estates. This is likely to change, however, with SAF used for administration of LMC and RDP measures. Grass leys are underrepresented in JAC by 29% and as noted in Section 3 this may be an artefact of how seasonally rented land is handled in the two datasets. The conformity for

total crops and grass is good at 1% difference but differences in woodland remain significant at 58%.

Table 31 – Changes in grassland and others, 2007 only

Item	Year	JAC	SAF/FDS	Diff	Diff%
Grass for mowing/grazing < 5yrs (ITEM42/44)	2007	316,026.39	406,715.54	90,689.15	29%
Grass for mowing/grazing >= 5yrs (ITEM43/45)	2007	919,122.97	889,244.73	-29,878.24	-3%
Total Grass (ITEM42-45)	2007	1,235,149.36	1,295,960.27	60,810.91	5%
Total crops and grass (ITEM46)	2007	1841316.47	1859429.49	18113.02	1%
Rough Grazings (ITEM47)	2007	3,401,694.49	2,557,094.72	-844,599.77	-25%
Woodland (ITEM48)	2007	279,850.96	116,544.26	-163,306.70	-58%
All land (ITEM50)	2007	5597385.59	4533068.47	-1064317.12	-19%

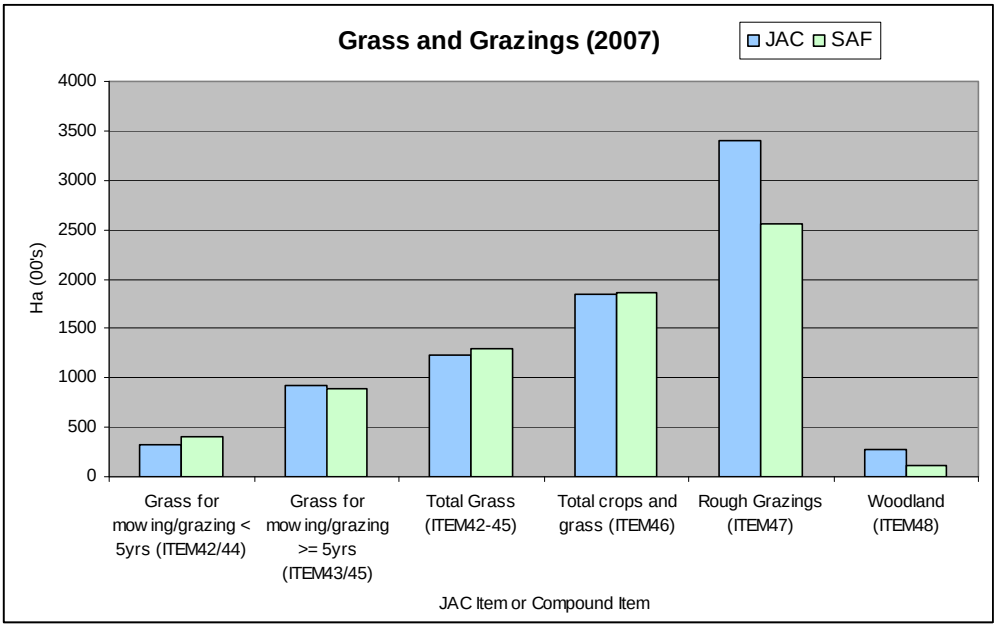


Figure 30

For the Items with smaller areas there is generally poor conformity (Tables 13-15). This is the outcome of differences in the reporting populations, the greater effect of area estimation errors for Items with very limited total areas and the difficulties of interpreting and comparing compound Items.

Table 32 – Changes in root crops and pulses

Item	Year	JAC	SAF/FDS	Diff	Diff%
Peas - human (ITEM52)	2007	3,793.35	1,983.26	-1,810.09	-48%
Beans - human (ITEM53)	2007	373.36	299.52	-73.84	-20%
Turnips/swedes (ITEM56)	2007	1,772.73	1,108.82	-663.91	-37%
Rhubarb (ITEM65)	2007	42.16	68.87	26.71	63%
Various/Other Veg (ITEM55/57-61/63/64/66/67)	2007	5,796.77	4,128.22	-1,668.55	-29%
Total Veg (ITEM68)	2007	11,778.37	7,588.69	-4,189.68	-36%

Table 33 – Changes in soft fruits, 2007 only

Item	Year	JAC	SAF/FDS	Diff	Diff%
Raspberries (ITEM71)	2007	477.37	485.24	7.87	2%
Blackcurrants (ITEM72)	2007	362.66	319.88	-42.78	-12%
Mixed/other soft fruit (ITEM75)	2007	137.56	765.12	627.56	456%
Total soft fruit (ITEM76)	2007	1,786.96	1,570.24	-216.72	-12%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	2007	480.97	528.87	47.90	10%

Table 34 – Changes in Flowers, 2007 only

Item	Year	JAC	SAF/FDS	Diff	Diff%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	2007	480.97	528.87	47.90	10%
Hardy Nursery Stock (ITEM80/81/1710/82/83)	2007	427.80	15,876.92	15,449.13	3611%
Total Bulbs, Flowers, Nursery (ITEM84)	2007	908.77	16,405.79	15,497.02	1705%

For livestock where there are comparable single Items then adequate conformity can be seen between JAC and SAF (e.g. Ewes and gimmers in Table 16 and Figure 21). In most cases, however, there is a poor match either since categories do not match exactly or because there is a relatively lower overlap between JAC(All) and SAF (L) that is achieved for SAF(FDS). This poor match is even the case for "Total" categories where issue of definitions do not arise. In this case the likelihood is that for some stock species (Total sheep and Total cattle) much of the difference may arise from the 3 month gap between SAF returns (March) and JAC returns (June), but this would not explain the differences of Total Poultry . Even when there is conformity between the two datasets it can be the case (as shown in Section 3) that the low Diff value is the result of cancelling out of large differences between individual businesses (e.g. Suckler cows).

Table 35 – Livestock Items

Item	Year	JAC	SAF/FDS	Diff	Diff%
Total pigs (ITEM157)	2007	440,562.00	390,086.00	-50,476.00	-11%
Total poultry (ITEM170)	2007	5,527,294.00	3,204,120.00	-2,323,174.00	-42%
Dairy cows for milk prod (ITEM100,102,104,106)	2007	240,600.00	192,889.00	-47,711.00	-20%
Suckler cows (ITEM101,103,105,107)	2007	515,273.00	490,052.00	-25,221.00	-5%
Other dairy and beef cattle 6-24mths (ITEM114-119)	2007	656,603.00	838,611.00	182,008.00	28%
Other dairy and beef cattle 24mths+ (ITEM110-113)	2007	106,218.00	135,324.00	29,106.00	27%
Total cattle (ITEM122)	2007	1,886,679.00	1,656,876.00	-229,803.00	-12%
Ewes and gimmers (ITEM139)	2007	2,858,077.00	3,153,711.00	295,634.00	10%
Ewe hoggs and other sheep (ITEM140,141,143,144)	2007	4499716	1570059	-2929657	-65%
Total sheep (ITEM145)	2007	7357793	4723770	-2634023	-36%
Deer (ITEM94)	2007	5633	4711	-922	-16%
Horses/ponies (ITEM95/96)	2007	21184	17725	-3459	-16%
Goats (ITEM1712/1713/98)	2007	2720	1700	-1020	-38%
Other livestock (ITEM171)	2007	1270	418	-852	-67%

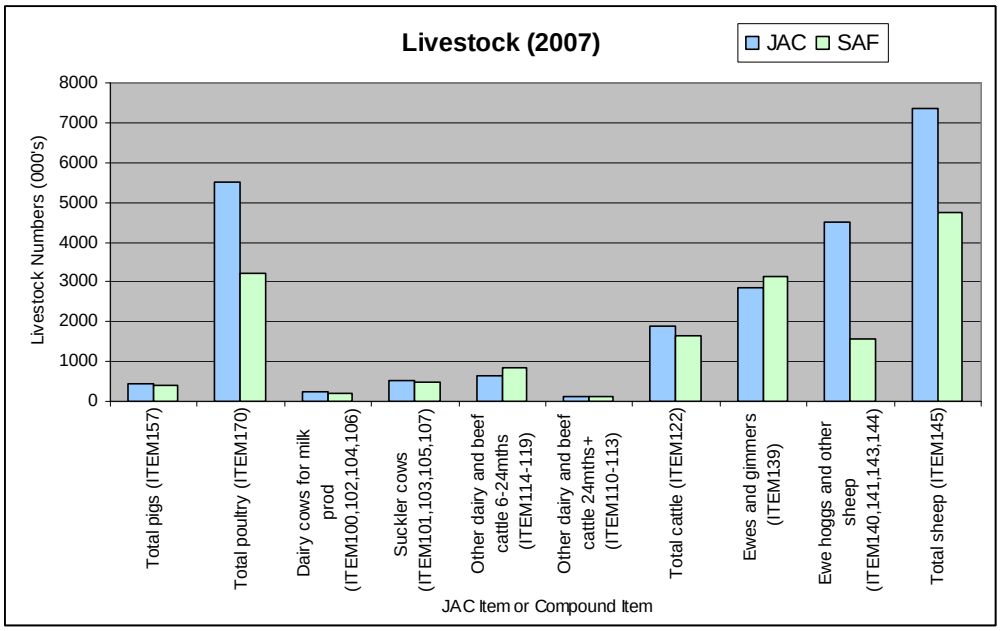


Figure 31

Overall (National) All Data -2007 Only (Main and Minor)

The tables below present the comparison between the complete 2007 JAC and SAF populations broken down by size classes (main and minor holdings). Where a holding exists in only the SAF then this has been recorded as Unspecified since the size class definitions are derived from JAC. As can be seen in the tables below the Unspecified class is usually small relative to main holdings but can be larger than the areas for minor holdings. The analysis does not present values livestock since comparisons between SAF and JAC can only be made at business level and the JAC size classifications apply to individual holdings. As with the comparison of common Holdings (Section 3.2) the minor holdings in general show the largest differences in percentage terms, since small differences are proportionately more significant.

Table 36 – Changes in cropping area

Item	Size	JAC	SAF/FDS	Diff	Diff%
Set-aside (ITEM3)	main	67,213	57,874	-9,339	-14%
Set-aside (ITEM3)	minor	720	715	-4	-1%
Set-aside (ITEM3)	Unspecified		704		
Triticale (ITEM15)	main	1,234	1,505	272	22%
Triticale (ITEM15)	minor	3	32	29	849%
Triticale (ITEM15)	Unspecified		37		
Wheat (ITEM14)	main	102,699	104,744	2,044	2%
Wheat (ITEM14)	minor	44	538	494	1116%
Wheat (ITEM14)	Unspecified		852		
Winter Barley (ITEM16)	main	52,496	48,870	-3,625	-7%
Winter Barley (ITEM16)	minor	129	178	49	38%
Winter Barley (ITEM16)	Unspecified		537		
Spring Barley (ITEM18)	main	225,424	221,598	-3,827	-2%
Spring Barley (ITEM18)	minor	595	1,697	1,103	185%
Spring Barley (ITEM18)	Unspecified		1,514		
Winter Oats (ITEM17)	main	7,192	6,394	-799	-11%
Winter Oats (ITEM17)	minor	42	0	-42	-100%
Winter Oats (ITEM17)	Unspecified		43		
Spring Oats (ITEM20)	main	13,517	12,322	-1,195	-9%
Spring Oats (ITEM20)	minor	117	209	92	78%
Spring Oats (ITEM20)	Unspecified		196		
Mix Grain (ITEM22)	main	393	1,723	1,330	339%
Mix Grain (ITEM22)	minor	12	82	70	589%
Mix Grain (ITEM22)	Unspecified		486		
Total Cereals (ITEM14-18,20,22)	main	402,955	395,433	-7,522	-2%
Total Cereals (ITEM14-18,20,22)	minor	943	2,655	1,712	182%
Total Cereals (ITEM14-18,20,22)	Unspecified		3,180		
Winter OSR (ITEM19)	main	34,268	33,369	-899	-3%
Winter OSR (ITEM19)	minor	8	155	147	1826%
Winter OSR (ITEM19)	Unspecified		366		
Spring OSR (ITEM23)	main	2,056	340	-1,716	-83%
Spring OSR (ITEM23)	minor	2	0	-2	-100%
Spring OSR (ITEM23)	Unspecified		0		
Total OSR (ITEM19,23)	main	36,324	33,708	-2,615	-7%
Total OSR (ITEM19,23)	minor	10	155	145	1434%
Total OSR (ITEM19,23)	Unspecified		366		
Linseed (ITEM21)	main	238	6	-231	-97%
Linseed (ITEM21)	minor	0	0	0	
Linseed (ITEM21)	Unspecified		0		
Seed Potatoes (ITEM24)	main	11,450	9,569	-1,881	-16%
Seed Potatoes (ITEM24)	minor	0	48	47	15753%
Seed Potatoes (ITEM24)	Unspecified		106		
Ware Potatoes (ITEM25/26)	main	17,763	14,580	-3,182	-18%
Ware Potatoes (ITEM25/26)	minor	105	125	20	19%
Ware Potatoes (ITEM25/26)	Unspecified		101		
Total Potatoes (ITEM24-26)	main	29,213	24,149	-5,063	-17%
Total Potatoes (ITEM24-26)	minor	106	173	67	64%
Total Potatoes (ITEM24-26)	Unspecified		207		
Beans (ITEM27)	main	3,507	4,108	602	17%
Beans (ITEM27)	minor	0	0	0	
Beans (ITEM27)	Unspecified		48		
Peas (ITEM28)	main	1,788	1,789	1	0%

Item	Size	JAC	SAF/FDS	Diff	Diff%
Peas (ITEM28)	minor	3	45	42	1602%
Peas (ITEM28)	Unspecified		0		
Lupins (ITEM2034)	main	409	840	431	105%
Lupins (ITEM2034)	minor	1	6	5	624%
Lupins (ITEM2034)	Unspecified		16		
Turnips/swedes (ITEM29)	main	6,363	5,576	-787	-12%
Turnips/swedes (ITEM29)	minor	123	45	-78	-64%
Turnips/swedes (ITEM29)	Unspecified		31		
Rape for Stock (ITEM31)	main	2,858	2,424	-434	-15%
Rape for Stock (ITEM31)	minor	86	30	-55	-65%
Rape for Stock (ITEM31)	Unspecified		8		
Maize (ITEM2059)	main	1,179	1,341	161	14%
Maize (ITEM2059)	minor	0	0	0	-100%
Maize (ITEM2059)	Unspecified		10		
Kale/Cabbage, Beet, Other (ITEM30/32/34)	main	13,262	7,010	-6,251	-47%
Kale/Cabbage, Beet, Other (ITEM30/32/34)	minor	441	228	-213	-48%
Kale/Cabbage, Beet, Other (ITEM30/32/34)	Unspecified		88		
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	main	24,071	17,191	-6,880	-29%
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	minor	651	309	-341	-52%
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	Unspecified		154		
Vegetables (ITEM35)	main	11,735	7,467	-4,268	-36%
Vegetables (ITEM35)	minor	43	31	-13	-29%
Vegetables (ITEM35)	Unspecified		91		
Orchard fruit (ITEM36)	main	44	5	-39	-90%
Orchard fruit (ITEM36)	minor	2	0	-1	-93%
Orchard fruit (ITEM36)	Unspecified		0		
Soft fruits (ITEM37)	main	1,769	1,570	-199	-11%
Soft fruits (ITEM37)	minor	18	0	-18	-99%
Soft fruits (ITEM37)	Unspecified		0		
Other/unspecified crops (ITEM38/41)	main	18,110	3,215	-14,895	-82%
Other/unspecified crops (ITEM38/41)	minor	317	75	-242	-76%
Other/unspecified crops (ITEM38/41)	Unspecified		9		
Bare Fallow (ITEM39)	main	10,403	7,037	-3,367	-32%
Bare Fallow (ITEM39)	minor	4,682	67	-4,615	-99%
Bare Fallow (ITEM39)	Unspecified		211		
Total crops, fallow, setaside (ITEM40)	main	598,826	553,706	-45,119	-8%
Total crops, fallow, setaside (ITEM40)	minor	7,341	4,306	-3,035	-41%
Total crops, fallow, setaside (ITEM40)	Unspecified		5,457		

Table 37 – Changes in grassland and others

Item	Year	JAC	SAF/FDS	Diff	Diff%
Grass for mowing/grazing < 5yrs (ITEM42/44)	main	288,482	387,324	98,842	34%
Grass for mowing/grazing < 5yrs (ITEM42/44)	minor	27,544	15,023	-12,521	-45%
Grass for mowing/grazing < 5yrs (ITEM42/44)	Unspecified		4,369		
Grass for mowing/grazing >= 5yrs (ITEM43/45)	main	807,252	787,377	-19,875	-2%
Grass for mowing/grazing >= 5yrs (ITEM43/45)	minor	111,871	89,796	-22,075	-20%
Grass for mowing/grazing >= 5yrs (ITEM43/45)	Unspecified		12,072		
Total Grass (ITEM42-45)	main	1,095,734	1,174,701	78,966	7%
Total Grass (ITEM42-45)	minor	139,415	104,819	-34,596	-25%
Total Grass (ITEM42-45)	Unspecified		16,440		
Total crops and grass (ITEM46)	main	1,694,560	1,728,407	33,847	2%
Total crops and grass (ITEM46)	minor	146,757	109,126	-37,631	-26%
Total crops and grass (ITEM46)	Unspecified		21,897		
Rough Grazings (ITEM47)	main	3,266,328	2,466,759	-799,569	-24%
Rough Grazings (ITEM47)	minor	135,366	74,671	-60,695	-45%
Rough Grazings (ITEM47)	Unspecified		15,665		
Woodland (ITEM48)	main	239,648	108,311	-131,337	-55%
Woodland (ITEM48)	minor	40,203	5,380	-34,824	-87%
Woodland (ITEM48)	Unspecified		2,853		
All land (ITEM50)	main	5,265,906	4,303,477	-962,430	-18%
All land (ITEM50)	minor	331,479	189,177	-142,302	-43%
All land (ITEM50)	Unspecified		40,415		

Table 38 – Changes in root crops

Item	Year	JAC	SAF/FDS	Diff	Diff%
Peas - human (ITEM52)	main	3,793	1,908	-1,885	-50%
Peas - human (ITEM52)	minor	0	18	18	
Peas - human (ITEM52)	Unspecified		57		
Beans - human (ITEM53)	main	373	300	-74	-20%
Beans - human (ITEM53)	minor	0	0	0	
Beans - human (ITEM53)	Unspecified		0		
Turnips/swedes (ITEM56)	main	1,773	1,095	-678	-38%
Turnips/swedes (ITEM56)	minor	0	0	0	-100%
Turnips/swedes (ITEM56)	Unspecified		14		
Rhubarb (ITEM65)	main	42	65	23	55%
Rhubarb (ITEM65)	minor	0	0	0	-100%
Rhubarb (ITEM65)	Unspecified		4		
Various/Other Veg (ITEM55/57-61/63/64/66/67)	main	5,754	4,099	-1,654	-29%
Various/Other Veg (ITEM55/57-61/63/64/66/67)	minor	43	13	-31	-71%
Various/Other Veg (ITEM55/57-61/63/64/66/67)	Unspecified		16		
Total Veg (ITEM68)	main	11,735	7,467	-4,268	-36%
Total Veg (ITEM68)	minor	43	31	-13	-29%
Total Veg (ITEM68)	Unspecified		91		

Table 39 – Changes in Soft Fruit

Item	Year	JAC	SAF/FDS	Diff	Diff%
Raspberries (ITEM71)	main	477	485	8	2%
Raspberries (ITEM71)	minor	0	0	0	-100%
Raspberries (ITEM71)	Unspecified		0		
Blackcurrants (ITEM72)	main	362	320	-43	-12%
Blackcurrants (ITEM72)	minor	0	0	0	-96%
Blackcurrants (ITEM72)	Unspecified		0		
Mixed/other soft fruit (ITEM75)	main	121	765	644	534%
Mixed/other soft fruit (ITEM75)	minor	17	0	-17	-99%
Mixed/other soft fruit (ITEM75)	Unspecified		0		
Total soft fruit (ITEM76)	main	1,769	1,570	-199	-11%
Total soft fruit (ITEM76)	minor	18	0	-18	-99%
Total soft fruit (ITEM76)	Unspecified		0		

Table 40 - Changes in flowers

Item	Year	JAC	SAF/FDS	Diff	Diff%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	main	474	529	55	12%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	minor	7	0	-7	-100%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	Unspecified		0		
Hardy Nursery Stock (ITEM80/81/1710/82/83)	main	421	15,073	14,652	3476%
Hardy Nursery Stock (ITEM80/81/1710/82/83)	minor	6	732	725	11442%
Hardy Nursery Stock (ITEM80/81/1710/82/83)	Unspecified		72		
Total Bulbs, Flowers, Nursery (ITEM84)	main	895	15,602	14,707	1643%
Total Bulbs, Flowers, Nursery (ITEM84)	minor	13	732	718	5345%
Total Bulbs, Flowers, Nursery (ITEM84)	Unspecified		72		

Overall (National) All Data – 2005, 2006, 2007

The datasets are completed with a presentation of the National levels summaries for the years 2005 to 2007. The signs of differences are in most cases consistent – except where differences are tending towards zero when there may be a change of sign. In many cases there is a trend to reducing differences between the two datasets, e.g. cereals, oilseeds and potatoes. These reductions in differences tend to be seen in more extensive items with the smaller items having more variability in difference and less discernable pattern. There are also some items where there has been an increase in difference e.g. Grass under 5 years – but these may be due to changes in reporting processes or the influence of changes in seasonal renting.

Table 41 - Changes in cropping area, 2005 to 2007

Item	Year	JAC	SAF/FDS	Diff	Diff%
Set-aside (ITEM3)	2005	69,492.38	58,432.10	-11,060.28	-16%
Set-aside (ITEM3)	2006	67,549.31	60,129.24	-7,420.07	-11%
Set-aside (ITEM3)	2007	67,933.21	59,293.39	-8,639.82	-13%
Triticale (ITEM15)	2005	1,140.12	1,117.93	-22.19	-2%
Triticale (ITEM15)	2006	1,286.29	1,608.26	321.97	25%
Triticale (ITEM15)	2007	1,236.90	1,574.43	337.53	27%
Wheat (ITEM14)	2005	95,595.16	92,310.64	-3,284.52	-3%
Wheat (ITEM14)	2006	99,681.14	102,547.71	2,866.57	3%
Wheat (ITEM14)	2007	102,743.63	106,134.25	3,390.62	3%
Winter Barley (ITEM16)	2005	51,340.53	42,900.68	-8,439.85	-16%
Winter Barley (ITEM16)	2006	53,762.17	49,081.07	-4,681.10	-9%
Winter Barley (ITEM16)	2007	52,625.01	49,585.94	-3,039.07	-6%
Spring Barley (ITEM18)	2005	243,298.06	234,473.16	-8,824.90	-4%
Spring Barley (ITEM18)	2006	220,639.62	214,447.24	-6,192.38	-3%
Spring Barley (ITEM18)	2007	226,019.13	224,809.83	-1,209.30	-1%
Winter Oats (ITEM17)	2005	4,984.39	3,521.65	-1,462.74	-29%
Winter Oats (ITEM17)	2006	6,618.14	6,063.82	-554.32	-8%
Winter Oats (ITEM17)	2007	7,234.09	6,436.45	-797.64	-11%
Spring Oats (ITEM20)	2005	14,970.60	12,613.51	-2,357.09	-16%
Spring Oats (ITEM20)	2006	16,064.02	15,368.08	-695.94	-4%
Spring Oats (ITEM20)	2007	13,634.02	12,726.89	-907.13	-7%
Mix Grain (ITEM22)	2005	444.06	2,822.28	2,378.22	536%
Mix Grain (ITEM22)	2006	461.38	3,454.25	2,992.88	649%
Mix Grain (ITEM22)	2007	404.92	2,291.79	1,886.88	466%
Total Cereals (ITEM14-18,20,22)	2005	411,772.93	386,937.57	-24,835.36	-6%
Total Cereals (ITEM14-18,20,22)	2006	398,512.75	389,116.18	-9,396.57	-2%
Total Cereals (ITEM14-18,20,22)	2007	403,897.68	401,267.79	-2,629.89	-1%
Winter OSR (ITEM19)	2005	32269.16	30354.71	-1914.45	-6%
Winter OSR (ITEM19)	2006	30978.29	29953.79	-1024.50	-3%
Winter OSR (ITEM19)	2007	34276.00	33889.53	-386.47	-1%
Spring OSR (ITEM23)	2005	3322.04	1353.34	-1968.70	-59%
Spring OSR (ITEM23)	2006	2764.21	1051.72	-1712.49	-62%
Spring OSR (ITEM23)	2007	2057.86	339.77	-1718.09	-83%
Total OSR (ITEM19,23)	2005	35591.20	31708.05	-3883.15	-11%
Total OSR (ITEM19,23)	2006	33742.50	31005.51	-2736.99	-8%
Total OSR (ITEM19,23)	2007	36333.86	34229.30	-2104.56	-6%
Linseed (ITEM21)	2005	408.32	34.52	-373.80	-92%
Linseed (ITEM21)	2006	313.74	9.43	-304.31	-97%
Linseed (ITEM21)	2007	237.64	6.30	-231.34	-97%
Seed Potatoes (ITEM24)	2005	11,127.78	6,721.83	-4,405.95	-40%
Seed Potatoes (ITEM24)	2006	11,440.34	9,218.09	-2,222.25	-19%
Seed Potatoes (ITEM24)	2007	11,450.14	9,722.86	-1,727.28	-15%
Ware Potatoes (ITEM25/26)	2005	16,706.00	12,299.29	-4,406.71	-26%
Ware Potatoes (ITEM25/26)	2006	16,710.85	13,527.74	-3,183.11	-19%
Ware Potatoes (ITEM25/26)	2007	17,867.91	14,806.21	-3,061.70	-17%
Total Potatoes (ITEM24-26)	2005	27,833.78	19,021.12	-8,812.66	-32%
Total Potatoes (ITEM24-26)	2006	28,151.19	22,745.83	-5,405.36	-19%
Total Potatoes (ITEM24-26)	2007	29,318.05	24,529.07	-4,788.98	-16%
Beans (ITEM27)	2005	3,440.98	3,767.41	326.43	9%
Beans (ITEM27)	2006	4,527.15	5,452.97	925.82	20%
Beans (ITEM27)	2007	3,506.83	4,156.44	649.61	19%
Peas (ITEM28)	2005	1,394.99	1,532.03	137.04	10%
Peas (ITEM28)	2006	1,489.76	1,751.01	261.25	18%
Peas (ITEM28)	2007	1,790.27	1,833.44	43.17	2%
Lupins (ITEM2034)	2005	777.28	1,064.45	287.17	37%
Lupins (ITEM2034)	2006	581.43	1,091.11	509.68	88%

Item	Year	JAC	SAF/FDS	Diff	Diff%
Lupins (ITEM2034)	2007	409.95	862.23	452.28	110%
Turnips/swedes (ITEM29)	2005	7,555.10	6,459.65	-1,095.45	-14%
Turnips/swedes (ITEM29)	2006	7,314.24	6,687.31	-626.93	-9%
Turnips/swedes (ITEM29)	2007	6,486.00	5,652.51	-833.49	-13%
Rape for Stock (ITEM31)	2005	3,135.26	2,565.70	-569.56	-18%
Rape for Stock (ITEM31)	2006	3,187.56	2,619.99	-567.57	-18%
Rape for Stock (ITEM31)	2007	2,943.53	2,462.21	-481.32	-16%
Maize (ITEM2059)	2005	738.07	1,282.39	544.32	74%
Maize (ITEM2059)	2006	909.03	1,244.65	335.62	37%
Maize (ITEM2059)	2007	1,179.61	1,350.46	170.85	14%
Kale/Cabbage, Beet, Other (ITEM30/32/34)	2005	13,064.75	7,095.55	-5,969.20	-46%
Kale/Cabbage, Beet, Other (ITEM30/32/34)	2006	14,144.86	7,250.05	-6,894.81	-49%
Kale/Cabbage, Beet, Other (ITEM30/32/34)	2007	13,702.81	7,327.06	-6,375.75	-47%
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	2005	25,270.46	18,467.74	-6,802.72	-27%
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	2006	26,137.12	18,893.11	-7,244.01	-28%
Total crops for stockfeeding (ITEM29-32,34,2034,2059)	2007	24,721.90	17,654.47	-7,067.43	-29%
Vegetables (ITEM35)	2005	10,567.84	6,978.31	-3,589.53	-34%
Vegetables (ITEM35)	2006	11,313.74	8,290.00	-3,023.74	-27%
Vegetables (ITEM35)	2007	11,778.37	7,588.69	-4,189.68	-36%
Orchard fruit (ITEM36)	2005	45.40	1.79	-43.61	-96%
Orchard fruit (ITEM36)	2006	39.37	2.56	-36.81	-93%
Orchard fruit (ITEM36)	2007	45.03	4.60	-40.43	-90%
Soft fruits (ITEM37)	2005	1,675.56	1,361.94	-313.62	-19%
Soft fruits (ITEM37)	2006	1,705.75	1,506.46	-199.29	-12%
Soft fruits (ITEM37)	2007	1,786.96	1,570.24	-216.72	-12%
Other/unspecified crops (ITEM38/41)	2005	12,729.10	1,308.71	-11,420.39	-90%
Other/unspecified crops (ITEM38/41)	2006	17,231.50	2,592.26	-14,639.24	-85%
Other/unspecified crops (ITEM38/41)	2007	18,427.17	3,299.11	-15,128.06	-82%
Bare Fallow (ITEM39)	2005	19,212.50	13,426.84	-5,785.66	-30%
Bare Fallow (ITEM39)	2006	17,724.23	11,821.17	-5,903.06	-33%
Bare Fallow (ITEM39)	2007	15,085.26	7,314.83	-7,770.43	-52%
Total crops, fallow, setaside (ITEM40)	2005	613610.81	544438.47	-69172.34	-11%
Total crops, fallow, setaside (ITEM40)	2006	600352.48	555263.52	-45088.96	-8%
Total crops, fallow, setaside (ITEM40)	2007	606167.11	563469.22	-42697.89	-7%

Table 42 – Changes in grass area, 2005 to 2007

Item	Year	JAC	SAF/FDS	Diff	Diff%
Grass for mowing/grazing < 5yrs (ITEM42/44)	2005	324,440.45	379,039.38	54,598.93	17%
Grass for mowing/grazing < 5yrs (ITEM42/44)	2006	321,475.57	407,517.42	86,041.85	27%
Grass for mowing/grazing < 5yrs (ITEM42/44)	2007	316,026.39	406,715.54	90,689.15	29%
Grass for mowing/grazing >= 5yrs (ITEM43/45)	2005	910,294.18	750,526.29	-159,767.89	-18%
Grass for mowing/grazing >= 5yrs (ITEM43/45)	2006	922,100.47	859,782.04	-62,318.43	-7%
Grass for mowing/grazing >= 5yrs (ITEM43/45)	2007	919,122.97	889,244.73	-29,878.24	-3%
Total Grass (ITEM42-45)	2005	1,234,734.63	1,129,565.67	-105,168.96	-9%
Total Grass (ITEM42-45)	2006	1,243,576.04	1,267,299.46	23,723.42	2%
Total Grass (ITEM42-45)	2007	1,235,149.36	1,295,960.27	60,810.91	5%
Total crops and grass (ITEM46)	2005	1848343.94	1674004.14	-174339.80	-9%
Total crops and grass (ITEM46)	2006	1843928.53	1822562.98	-21365.55	-1%
Total crops and grass (ITEM46)	2007	1841316.47	1859429.49	18113.02	1%
Rough Grazings (ITEM47)	2005	3,342,315.13	2,132,602.77	-1,209,712.36	-36%
Rough Grazings (ITEM47)	2006	3,441,132.78	2,348,295.74	-1,092,837.04	-32%
Rough Grazings (ITEM47)	2007	3,401,694.49	2,557,094.72	-844,599.77	-25%
Woodland (ITEM48)	2005	238,024.44	12,663.62	-225,360.82	-95%
Woodland (ITEM48)	2006	249,293.01	15,496.13	-233,796.88	-94%
Woodland (ITEM48)	2007	279,850.96	116,544.26	-163,306.70	-58%
All land (ITEM50)	2005	5509280.46	3819270.53	-1690009.93	-31%
All land (ITEM50)	2006	5614749.54	4186354.85	-1428394.69	-25%
All land (ITEM50)	2007	5597385.59	4533068.47	-1064317.12	-19%

Table 43 – Changes in root crops and pulses, 2005 to 2007

Item	Year	JAC	SAF/FDS	Diff	Diff%
Peas - human (ITEM52)	2005	3,165.08	1,705.66	-1,459.42	-46%
Peas - human (ITEM52)	2006	3,844.77	2,122.58	-1,722.19	-45%
Peas - human (ITEM52)	2007	3,793.35	1,983.26	-1,810.09	-48%
Beans - human (ITEM53)	2005	279.50	182.26	-97.24	-35%
Beans - human (ITEM53)	2006	295.51	181.44	-114.07	-39%
Beans - human (ITEM53)	2007	373.36	299.52	-73.84	-20%
Turnips/swedes (ITEM56)	2005	1,619.02	1,084.02	-535.00	-33%
Turnips/swedes (ITEM56)	2006	1,653.56	1,615.34	-38.22	-2%
Turnips/swedes (ITEM56)	2007	1,772.73	1,108.82	-663.91	-37%
Rhubarb (ITEM65)	2005	82.92	101.79	18.88	23%
Rhubarb (ITEM65)	2006	58.61	30.91	-27.70	-47%
Rhubarb (ITEM65)	2007	42.16	68.87	26.71	63%
Various/Other Veg (ITEM55/57-61/63/64/66/67)	2005	5,421.33	3,904.58	-1,516.75	-28%
Various/Other Veg (ITEM55/57-61/63/64/66/67)	2006	5,461.29	4,339.73	-1,121.56	-21%
Various/Other Veg (ITEM55/57-61/63/64/66/67)	2007	5,796.77	4,128.22	-1,668.55	-29%
Total Veg (ITEM68)	2005	10,567.84	6,978.31	-3,589.53	-34%
Total Veg (ITEM68)	2006	11,313.74	8,290.00	-3,023.74	-27%
Total Veg (ITEM68)	2007	11,778.37	7,588.69	-4,189.68	-36%

Table 44 – Changes in Soft Fruit, 2005 to 2007

Item	Year	JAC	SAF/FDS	Diff	Diff%
Raspberries (ITEM71)	2005	468.00	397.98	-70.02	-15%
Raspberries (ITEM71)	2006	425.50	446.48	20.98	5%
Raspberries (ITEM71)	2007	477.37	485.24	7.87	2%
Blackcurrants (ITEM72)	2005	419.88	334.97	-84.91	-20%
Blackcurrants (ITEM72)	2006	396.02	302.65	-93.37	-24%
Blackcurrants (ITEM72)	2007	362.66	319.88	-42.78	-12%
Mixed/other soft fruit (ITEM75)	2005	105.59	628.99	523.40	496%
Mixed/other soft fruit (ITEM75)	2006	115.48	757.33	641.85	556%
Mixed/other soft fruit (ITEM75)	2007	137.56	765.12	627.56	456%
Total soft fruit (ITEM76)	2005	1,675.56	1,361.94	-313.62	-19%
Total soft fruit (ITEM76)	2006	1,705.75	1,506.46	-199.29	-12%
Total soft fruit (ITEM76)	2007	1,786.96	1,570.24	-216.72	-12%

Table 45 Changes in flower, 2005 to 2007

Item	Year	JAC	SAF/FDS	Diff	Diff%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	2005	562.50	655.07	92.57	16%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	2006	547.44	680.41	132.98	24%
Bulbs/Flowers/Bedding Plants (ITEM77/78/1709)	2007	480.97	528.87	47.90	10%
Hardy Nursery Stock (ITEM80/81/1710/82/83)	2005	421.20	0.00	-421.20	-100%
Hardy Nursery Stock (ITEM80/81/1710/82/83)	2006	402.77	4,482.60	4,079.83	1013%
Hardy Nursery Stock (ITEM80/81/1710/82/83)	2007	427.80	15,876.92	15,449.13	3611%
Total Bulbs, Flowers, Nursery (ITEM84)	2005	983.70	655.07	-328.63	-33%
Total Bulbs, Flowers, Nursery (ITEM84)	2006	950.21	5,163.01	4,212.80	443%
Total Bulbs, Flowers, Nursery (ITEM84)	2007	908.77	16,405.79	15,497.02	1705%

Table 46 – Changes in livestock, 2005 to 2007

Item	Year	JAC	SAF/FDS	Diff	Diff%
Total pigs (ITEM157)	2005	445,475.00			
Total pigs (ITEM157)	2006	446,950.00	340,874.00	-106,076.00	-24%
Total pigs (ITEM157)	2007	440,562.00	390,086.00	-50,476.00	-11%
Total poultry (ITEM170)	2005	6,021,970.00			
Total poultry (ITEM170)	2006	6,159,760.00	3,431,521.00	-2,728,239.00	-44%
Total poultry (ITEM170)	2007	5,527,294.00	3,204,120.00	-2,323,174.00	-42%
Dairy cows for milk prod (ITEM100,102,104,106)	2005	238,627.00			
Dairy cows for milk prod (ITEM100,102,104,106)	2006	240,118.00	311,052.00	70,934.00	30%
Dairy cows for milk prod (ITEM100,102,104,106)	2007	240,600.00	192,889.00	-47,711.00	-20%
Suckler cows (ITEM101,103,105,107)	2005	524,429.00			
Suckler cows (ITEM101,103,105,107)	2006	524,027.00	1,348,592.00	824,565.00	157%
Suckler cows (ITEM101,103,105,107)	2007	515,273.00	490,052.00	-25,221.00	-5%
Other dairy and beef cattle 6-24mths (ITEM114-119)	2005	675,434.00			
Other dairy and beef cattle 6-24mths (ITEM114-119)	2006	664,149.00			
Other dairy and beef cattle 6-24mths (ITEM114-119)	2007	656,603.00	838,611.00	182,008.00	28%
Other dairy and beef cattle 24mths+ (ITEM110-113)	2005	96,507.00			
Other dairy and beef cattle 24mths+ (ITEM110-113)	2006	103,692.00			
Other dairy and beef cattle 24mths+ (ITEM110-113)	2007	106,218.00	135,324.00	29,106.00	27%
Total cattle (ITEM122)	2005	1,908,680.00			
Total cattle (ITEM122)	2006	1,903,476.00	1,659,644.00	-243,832.00	-13%
Total cattle (ITEM122)	2007	1,886,679.00	1,656,876.00	-229,803.00	-12%
Ewes and gimmers (ITEM139)	2005	2,964,119.00			
Ewes and gimmers (ITEM139)	2006	2,894,937.00	3,248,995.00	354,058.00	12%
Ewes and gimmers (ITEM139)	2007	2,858,077.00	3,153,711.00	295,634.00	10%
Ewe hoggs and other sheep (ITEM140,141,143,144)	2005	4,483,531.00			
Ewe hoggs and other sheep (ITEM140,141,143,144)	2006	4,412,196.00	1,465,943.00	-2,946,253.00	-67%
Ewe hoggs and other sheep (ITEM140,141,143,144)	2007	4499716	1570059	-2929657	-65%
Total sheep (ITEM145)	2005	7447650			
Total sheep (ITEM145)	2006	7307133	4714938	-2592195	-35%
Total sheep (ITEM145)	2007	7357793	4723770	-2634023	-36%
Deer (ITEM94)	2005	6859			
Deer (ITEM94)	2006	5864	5213	-651	-11%
Deer (ITEM94)	2007	5633	4711	-922	-16%
Horses/ponies (ITEM95/96)	2005	18705			
Horses/ponies (ITEM95/96)	2006	20043	16795	-3248	-16%
Horses/ponies (ITEM95/96)	2007	21184	17725	-3459	-16%
Goats (ITEM1712/1713/98)	2005	3224			
Goats (ITEM1712/1713/98)	2006	3175	2490	-685	-22%
Goats (ITEM1712/1713/98)	2007	2720	1700	-1020	-38%
Other livestock (ITEM171)	2005	1146			
Other livestock (ITEM171)	2006	1469	386	-1083	-74%
Other livestock (ITEM171)	2007	1270	418	-852	-67%

5.0. Report on Workshop Discussion to Understand the Impact of Merging the JAC and the SAF

This report aims to cover objective 5, namely '*to discuss with key members of RIPD and REAS current, planned and potential developments which could have a bearing on the closer integration of SAF and JAC'.*

It presents findings from a half day workshop conducted within Pentland House with a number of key personnel involved with the administration of the single application form (SAF) and the June Agricultural Census (JAC).

5.1. Details of the Workshop

The meeting was conducted on the 26th March 2008 and was facilitated by members of the research team, namely Keith Mathews (MLURI) and Alan Renwick (SAC),. Previous to the meeting, all Scottish Government staff were supplied with drafts of this report in order to familiarise themselves with the work conducted and the issues raised by these reports.

Attendees
In total, 3 members of the Analytical Services staff, and 9 people for the Rural Payments Department attended.

Format of the Workshop
The format of the workshop followed a number of key stages. When arrived, participants were welcomed Keith Matthews and were provided with a statement of the purpose of the workshop as well as introducing members of the research group and project manager (Adam Krawczyk).

This was followed by presentations of the key outputs by Keith Mathews, which outlined the major points of the SAF-JAC analysis. After this participants were allowed a ten minute session for clarification and questions regarding the output.

Participants were then split into two groups and asked to conduct a SWOT blitz exercise, facilitated by the research partners. The question participants had to consider was *'Can SAF data meet JAC requirements?'*

Essentially this exercise allowed individuals to produce a number of post-it notes and then allowed grouping of these statements within the SWOT matrix. In total this took around 30 minutes to conduct this exercise.

A plenary session was then conducted to review the results of the SWOT exercise and to identify and clarify the organisational and operational requirements of the central question. Further discussion of how these changes could be implemented, with Keith Matthews as chair, was conducted.

5.2. Results

Results of the SWOT Blitz

The question asked was '*Can SAF data meet JAC requirements'*. Full results of the SWOT blitz are included in Appendix 1. What follows is a summary of the main strengths and weakness identified by both groups.

Strengths

Major strengths identified by the groups were expertise offered by the two (JAC and SAF) groups who have an understanding of the datasets. Similarly, there is a large degree of overlap, as around 89% of areas are common between datasets. However, the SAF may provide more accuracy, due to its underlying payment and inspection requirements.

Hence, a strength would be complementarity between the two data sets, where items missing from one data set could be provided by the other dataset. A similar strength is the willingness to share data among the staff involved in the two exercises, although it was pointed out that currently JAC data can only be used for statistical purposes.

Weaknesses

A major weakness would be reconciling the definitions of '*Business*', *'Holdings'* and other entities within the SAF and JAC. A mismatch in dates on which the data are captured is another weakness, as the SAF and JAC are collected on separate dates and numbers, especially those for livestock, may have changed in-between time.

There may also be technical difficulties in exchanging data between the two data models through a lack of common identifiers, i.e. BRNS (Business Reference Numbers), otherwise real problems would occur when integrating from an IT point of view

Unlike the JAC, which covers all farm holdings, there is an issue of coverage with SAF as it only represents the land on which payment claims are being made. There will be land on which there are no claims, or where businesses choose not to claim. In addition, the SAF population changes on a yearly basis, which would have an impact on any analysis of change within the industry.

Another issue is that this may lead to too many activity codes, as the JAC and SAF have a large number of different codes. This could mean an accumulation of codes if they were both merged. Similarly, the SAF and JAC are governed by separate legislation, which may present problems when merging the two.

Opportunities

There is an opportunity for increasing efficiencies, as it may lead to reductions in the number of activity codes, as well as farmers only having to complete one form. There would also be efficiencies from streamlining the processing by the Scottish Government, which would lead to possible cost savings and creating more freedom for staff to take on additional tasks. This could lead to savings on IT support if there is a move to one dataset. In addition, comparisons with SAF should allow evaluation and improvement of the JAC imputation process.

Threats
A major threat is the need to meet payment dates and there would be political consequences if these were not met. What is required and by whom, both statutorily and desirably needs to be resolved.

Merging the two could mean a loss of detail from the JAC, if just the SAF classes are used. In addition, merging into one form may be too large. Different requirements (esp. in the future) may mean that the two cannot amalgamate, for example the introduction of SRDP onto SAF from 2009 onwards may make SAF too complicated to accommodate all needs and requirements.

Main Points of the Plenary Discussion

The participants where then invited to discuss the implications of the SWOT blitz in order to develop a richer picture of the issues related to merging the SAF to the JAC. What follows are summaries organised under specific headings. The main notes from the discussion are provided in Appendix 2.

Process Requirements
From an IT perspective there are questions over how to handle the new 'data model' that may be needed for merging the two. There are a number of options in terms of technology, namely

- is the JAC technology frozen to handle these changes,
- is the database migrated to the SAF, or
- are there opportunities for the systems to be used for other areas.

Essentially, the SAF would be the claim mechanism behind the SRDP. Hence there could be an opportunity to rewrite the application to develop a new 'data model', and subsequent opportunities to adopt various more flexible platforms, e.g. Java etc.

In addition, some debate revolved around the data capture process. At present the majority of SAF forms are completed on paper format, but a growing number are using the web based facility (17% in 2007). In addition, with the SRDP producers are being forced down an on-line route, through information provision at the application stage.. Hence, if produces have a positive experience of this it may encourage more on-line usage. Consequently, if there is a new system, from merging the JAC and the SAF, there opportunities for more web based entry which improves flexibility, allows more data checking on-line and reduces processing costs.

However, this opportunity may be treated with caution as there are a number of producers happy to use the paper form, which is extremely straightforward for someone who maintains the same amount of land and activities on a year to year basis. Similarly, merging may have to be conducted whilst both systems are running and, it has to be emphasised that it is essential that there is no disruption to normal business. Some of the group argued that if it were to threaten payment on the 1st December then it would not be worth doing. However, it could also be argued that the merging of the two is driven by a desire to streamline bureaucracy.

Timing Issues
There are different elements of timing within the forms to consider. Namely, what is the difference between land use of the 15th May to the 1st June? The single farm payment is now based on activity on a single day. However, it is questionable whether the two week gap in reporting would have a significant impact on measuring land-use activities.

Use of Other Data Sources
The rest of the UK are using BCMS data for cattle instead of the census which has been accepted by the EU, after Defra have used some modeling to estimate precise requirements.

There is an issue with matching the JAC to the BCMS, as a recent SAC study had problems matching the two, in fact finding negative cattle numbers between parishes. There are other sources, such as the sheep and goats inventory, and after the introduction of the tagging directive these will record movements of livestock.

On a wider note, EUROSTAT are currently looking at requirements for the next decade and it looks like every member state would have to collect information through a survey of agricultural production methods, e.g. irrigation. The question is whether it is collected separately or as part of a census.

Streamlining the Form
There is an opportunity for the SAF to move away from numerous codes measuring specific activities, e.g. no collection of spring barley, just a general set of crop codes.

In terms of streamlining the efficiencies within the form, there are still codes that are land use related from non-eligible areas, which may be from previous administrations.

5.3. Options for Change

Given this debate there were a number of options for change identified by the group, namely:-

1) we don't change anything;
2) we reduce the quantity of the SAF, which is something can be done easily and presented as a reduction in bureaucracy and may be welcomed by farmers;
3) we reduce the JAC, which might be possible by using alternative data sources and statistical modelling to meet EC statistical requirements
4) combining the two forms

Some of the group argued that items 1 & 4 may not have majority support, but there is an appetite for change and improvement. An option to consider, they argued is number 2 and 3, where the SAF or JAC are simplified. This is driven by the need to focus on securing payment deadlines for farmers and not diverting resources to create awareness of the merging forms etc. However, others argued, that a 'mock-up' form could be made to fully appreciate the implications of merging the two.

Stakeholder Presentation

Essentially, producing a ‘mock up’ would be important in presenting the idea of merging to the stakeholders. It could also be used to test the form with some piloting. In addition, some cost-benefit analysis may have to be conducted to understand the various options.

The legal requirements have been mapped within Section 1.1., however some categories within the JAC and SAF may not have a direct requirement to collect them, but there is a requirement for calculation of farm income etc. Consequently, there is a question whether Eurostat can be convinced that some areas can be modeled instead of directly collected.

It has to be made clear on the forms sent out that the JAC form is for statistical purposes, i.e. not for assessing individual farms. A disclaimer on a joint form would have to be provided. Though there would have to be some consultation with the legal department regarding this.

Annex I: Meta Data Analysis

This section meets objective ii: To quantify the level of duplication in data collection between the JAC and SAF.

Introduction

Some of the most thorny and potentially disruptive issues that arise in comparing datasets are in ensuring that there are clear definitions of what the data means. This requires the preliminary analysis of "meta-data", that is data about the data. Since the intention is to assess the fitness of data collected in the SAF as an alternative to the JAC censuses then it is essential to have agreed definitions for classes within both datasets and agreed mappings between individual classes or groups of classes. Simple cases such as does "wheat" mean both the winter and spring crop are easily resolved but other definitions such as "other vegetables" or even "other land" can require considerable care if errors are not to be introduced. To this end the project team have developed a combined data dictionary and mapping of categories or groups of categories between which legitimate comparisons can me made.

Materials and Methods

For each question on the JAC form (and thus each JAC variable) the equivalent data requested in the SAF, and held in the SIACS database, have been identified and tabulated. The most up-to-date JAC and SAF forms available in January 2008 have been used. These are: June 2007 main census, June 2007 minor census, December 2007 (winter) survey and May 2007 Single Application Form (SAF) including field data sheets (FDS). The land uses recorded via the SAF/FDS are coded as specified in Annex 2 of the SAF Explanatory notes[13].

The tabulations in the following sections list the data collected in the JAC and present the SAF data that most closely matches. The tabulation also comments on the adequacy of the matching and notes any potential issues. There are some unresolved issues relating to the detailed definitions in Annex 1. If necessary, these will be considered further by the client.

The annex provides a separate table for each Section of the JAC. The rows of each table are the JAC questions. The first three columns in each table indicate whether a question is asked in the main (M), minor (m) and/or December (D) forms. The fourth column shows the item ID for each answer – this is important when referencing the JAC data-sets because they are identified only by item numbers in the supplied data. The next column 'JAC Question/Variable' gives the question from the census forms – on occasion these questions have been reordered or modified slightly in order to keep the tables as compact and concise as possible. The column following this indicates the unit used for the question. The column 'SAF Question/Variable' is used to indicate similar question(s) from the SAF and/or FDS and the 'Notes' as indicated previously reports the adequacy of the

[13] These categories are also defined in the database table REF_CODES_ALL under various domains and sub-codes

mapping and remaining issues. The adequacy of the mapping is presented using the terms in the table below.

Adequacy of JAC to SAF mappings

Partial	SAF partially satisfies the requirements of the JAC
Full	SAF fully satisfies the requirements of the JAC
Compound Partial	SAF partially satisfies a group of JAC requirements but not individual questions
Compound Full	SAF fully satisfies a group of JAC requirements but not individual questions

JAC questions that appear in italics are those that only appear on the minor census. No match up has been shown for these since they are used to 'back calculate' the figures for the associated questions from the main census, e.g. in the Crops section the minor question 0378 (potatoes) is used to 'back calculate' the more detailed main census questions numbered 0024, 0025, 0026 (seed and ware potatoes) using a proportioning method. There is no need therefore to establish equivalent categories within the SAF since the comparison between JAC and SAF will be on the basis of the combined main and minor census or the (winter) survey.

Results

1.1.1 Area of holding recorded in corporate register

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Qu/Var*	*Notes*
Y	Y	Y	n/a	Area you own	Ha		The JAC form is issued with pre-populated area figures, sourced from the CDM[14]. The information in the CDM is updated using Land and Business Change Form (LBCF). It is assumed here that the definitions within the CDM of what is included in figures for areas owned, rented and total and the procedures used for their calculation are fully compatible with the requirements of the JAC.
Y	Y	Y	n/a	Area you rent from another person under a full tenancy	Ha		
Y	Y	Y	n/a	Total area	Ha		

1.1.2 Details of owned and rented area of holding

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Qu/Var*	*Notes*
Y	Y		2249	Owned croft	Ha		Figures in this section of the census form may not agree with the previous one, where changes are still to be notified to area office or a change took place after the forms were sent to the printers. As above, these questions are not explicitly covered in SAF. It may be possible to provide values based on data held elsewhere within the CDM (e.g. the Field Maintenance Register (FMR)). Should this be investigated?
Y	Y		2250	Other owned area	Ha		
Y	Y	Y	0011	Total owned area	Ha		
Y	Y		2251	Rented croft	Ha		
Y	Y		2252	Small Landowners Act tenancy (only outside crofting counties)	Ha		
Y	Y		2160	91 Act tenancy : Any tenancy for more than 1 year with full security of tenure and succession rights	Ha		
Y	Y		2161	91 Act, Ltd Partnership : Any tenancy for more than 1 year where the tenant is a partnership	Ha		
Y	Y		2053	Years specified in lease (2161)	Yrs		
Y	Y		2158	SLDT[15] : entered into on or after Martinmas[16] 2003 for 1 to 5 years	Ha		
Y	Y		2051	Years specified in lease (2158)	Yrs		
Y	Y		2159	LDT[17]: entered into on or after Martinmas 2003 for 15 years or more with a specific end date	Ha		
Y	Y		2052	Years specified in lease (2159)	Yrs		
Y	Y	Y	0007	Total area you rent from another person under a full tenancy (2251+2252+2160+2161+2158+2159)	Ha		
Y	Y	Y	0012	Total area (0011+0007)	Ha		

1.1.3 Seasonal rents

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Qu/Var*	*Notes*
Y	Y	Y	0001	Area of land that you let seasonally to another person	Ha		FDS records 'Land let out to others' under the code LLO. Is this the equivalent to JAC 0001? Other information may exist elsewhere in the CDM?
Y	Y	Y	2229	If any of the land entered (0001) is let out under SLDT please state the number of SLDT leases	Ha		
Y	Y	Y	2230	Please state the combined area of any SLDT leases (2229)	Ha		
Y	Y	Y	0002	Area of land rented seasonally from another person (not included elsewhere)	Ha		

14 Corporate Data Model
15 Short Limited Duration Tenancy
16 28th November
17 Limited Duration Tenancy

1.1.4 Crops

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Variable*	*Notes*
Y	Y		0003	Land set aside under the SFPS (inc non-food)	Ha	Set-aside – normal, non-food, structural (LFA/non-LFA for each)	Full. Sum SAF categories - should match JAC.
Y			0015	Triticale for combining	Ha	FDS: Triticale (TRIT)	Full.
Y	Y	Y	0014	Wheat for combining	Ha	FDS: Durum (DW), spring (SW, SW-E), winter wheat (WW, WW-E)	Full. Sum SAF categories inc ECS[18] (*-E) crops.
Y		Y	0016	Winter barley f' combine	Ha	FDS: Winter barley (WB)	Full.
Y			0018	Spring barley f' combine	Ha	FDS: Spring barley (SB)	Full.
Y		Y	0017	Winter oats f' combining	Ha	FDS: Winter oats (WO)	Full.
Y			0020	Spring oats f' combining	Ha	FDS: Spring oats (SO)	Full.
Y			0022	Mix grain (wheat, oats, barley) for threshing	Ha	FDS: Mixed cereals (MC)?	Does this JAC code mean cereals sown together but not for silage?
Y		Y	0019	Winter rape for oilseed	Ha	FDS: Wint'r OSR (WOSR, WOSR-E)	Full. Inc ECS (*-E) crop.
Y			0023	Spring rape for oilseed	Ha	FDS: Spring OSR (SOSR, SOSR-E)	Full. Inc ECS (*-E) crop.
Y			0021	Linseed	Ha	FDS: Linseed (LIN), fibre flax (FFS)	Full.
Y			0024	Seed potatoes	Ha	FDS: Seed Potatoes (SPOT)	Full.
Y			0025	Ware potato harv <= 31/7	Ha	FDS: Ware Potatoes (WPOT)	Compound Full. SAF doesn't distinguish by harvest.
Y			0026	Ware potato harv > 31/7	Ha		
Y			0027	Beans for combining	Ha	FDS: Field Beans (FB)	Full.
Y			0028	Peas for combining	Ha	FDS: Protein Peas (PP)	Full.
Y			2034	Lupins	Ha	FDS: Sweet Lupins (SL)	Full.
Y	Y		0029	Turnips/swedes f' stock	Ha	FDS: Turnip/swedes f' stock (TSWS)	Full.
Y			0031	Rape for stock (not OS)	Ha	FDS: Rape for stock (RAST)	Full.
Y			2059	Maize	Ha	FDS: Maize (MAIZ)	Full.
Y			0030	Kale/cabbage for stock	Ha	FDS: Other crops for stock (OCS), Arable silage for stock (CMIX)	Compound Full. The SAF and JAC categories are different but the sum should amount to same?
Y			0032	Fodder beet	Ha		
Y	Y		0034	Other crops f' stock inc cereals for silage	Ha		
Y	Y		0035	Vegetables for human consumption grown in the open	Ha	FDS: Artichokes (ARTC), asparagus (ASPG), rhubarb (RHB), beans (BEAN), peas (PEAS), turnips/ swedes (STS), other veg (OVEG)	Partial. SAF more detailed but may include poly-tunnel crops which are not recorded here for JAC.
Y			0036	Orchard fruit (apples, plums) inc maiden trees for sale or manufacture	Ha	FDS: Top fruit (TFRT)	Full. Orchard and top fruit are equivalents.
Y	Y		0037	Soft fruits	Ha	FDS: Raspberries (RASP), black-berries (BKB), mulberries (MLB), loganberries (LGB), blackcurrants (BLR), whitecurrants (WRC), red-currants (RRC), gooseberries (GSB), bilberries (BLB), cranberries (CRB), other soft fruit (SFRT)	Full. The SAF is more detailed in this category but the sum of the sub-categories should match up with the JAC.
Y			0038	Other crops (not grass or set-aside)	Ha	FDS: Buckwheat (BW), canary seed (CANS), hemp (HS), millet (MIL), rye (RYE), sweetcorn (SC), sorghum (SOR), wild bird seed (WBS), hazlenuts (HZL), walnuts (WLN), almonds(ALMS), pistachios (PSTS)	Compound Partial. The FDS crops listed here should give a partial match to other crops in JAC. Unspecified crops would include some of those listed in FDS.
Y			0041	Unspecified crops (other crops less bulbs etc)	Ha		
Y			0185	Unspecified crops	Txt		
Y	Y		0039	Bare fallow not set-aside	Ha	FDS: Fallow (FALW)	Full.
Y	Y		0040	Total crops, fallow, set-aside	Ha	Total LFA, Total Non-LFA, other LFA, other non-LFA (might need to deduct grass or sum all of above categories instead)	Full. Total area recorded in SAF as LFA/non-LFA – sum should match. FDS inc grass but JAC doesn't?
	Y		0254	*Oats/mixed grain for thresh'*	Ha	These questions are used to back calculate some of those shown	

[18] Energy Crop Scheme

	Y		1680	*Rape for oilseed*	Ha	above and as such have not been matched here.
	Y		0378	*Potatoes*	Ha	

1.1.5 Grass, hay, straw and silage

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Variable*	*Notes*
Y			0042	Grass for mowing < 5 years	Ha	FDS: Grass under 5 years (TGRS)	Partial. FDS does not distinguish between mowing and grazing.
Y			0044	Grass for grazing < 5 years	Ha		
Y			0043	Grass for mowing >= 5 years	Ha	FDS: Grass over 5 years (PGRS)	
Y			0045	Grass for grazing >= 5 years	Ha		
						FDS: Turf production (TURF), miscanthus (MSC-E), Reed canary grass (RCG-E) – awaiting confirmation.	Not included? Probably be recorded in 0038 "Other crops" and item0041/item0185 "Unspecified crops"
Y	Y		0046	Total crops and grass	Ha	Total from the crops section plus above TGRS and PGRS.	Full?
Y	Y		0047	Rough grazings situated within farming unit (not woods, roads, common grazings or seasonal land)	Ha	FDS: Rough grazing (RGR)	Full.
Y	Y		0048	Woodland (not orchards) forming part of the holding inc commercial etc	Ha	FDS: Open woodland grazed (WDG), woodland and farm forestry (WAF), short rotation coppice[19] (SRC-E)?	Full/Partial? Need to check if the SAF captures all woodlands explicitly.
Y	Y		0049	Other land (road, yards, buildings (not glasshouses, ponds, derelict land)	Ha		Full? A code for "Other Land" exists within the FDS database but is not an available option within the SAF – where is this data captured?
Y	Y		0050	Area of all land to which this form relates	Ha	Sum from crops, TGRS and PGRS as above plus RGR, WDG and WAF and SRC-E	Full – but see above.
		Y	0250	Grass area sown this year – undersown to cereal or other crop	Ha		These questions from the December survey have a management focus that is not recorded in SAF.
		Y	0251	Grass area sown this year – directly sown or reseeded	Ha		
		Y	0252	Grass cut for hay this year – area cut	Ha		
		Y	0255	Grass cut for hay this year – quantity of hay made	t		
		Y	0253	Grass cut for silage or haylage this year – area cut	Ha		
		Y	0256	Grass cut for silage or haylage this year – quantity of silage of haylage	t		
		Y	0257	Silage other than grass, made on the holding this year	t		
		Y	0258	Feeding straw stock on the holding at 3rd Dec this year	t		
	Y		0262	*Grass for mowing this season*	Ha	These questions are used to back calculate some of those shown above and as such have not been matched here.	
	Y		0265	*Grass for grazing this season*	Ha		

[19] an energy crop, such as willow, used for fuel

1.1.6 Vegetables for human consumption

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Variable*	*Notes*
Y			0052	Peas for canning, freezing, drying (not green for market or stock)	Ha	Peas for human consumption (PEAS)	Full.
Y			0053	Beans for canning, freezing, drying (not green for market or stock)	Ha	Beans for human consumption (BEAN)	Full.
Y			0056	Turnips and swedes	Ha	Shopping Turnips/Swedes (STS)	Full.
Y			0065	Rhubarb	Ha	Rhubarb (RHB)	Full.
Y			0055	Leeks	Ha		Not explicitly recorded in SAF – recorded as OVEG (see below).
Y			0057	Cabbages and savoys (summer/autumn)	Ha		
Y			0058	Cabbages and savoys (other)	Ha		
Y			0059	Brussels sprouts	Ha		
Y			0060	Calabrese	Ha		
Y			0061	Cauliflower, broccoli-heading varieties	Ha		
Y			0063	Carrots	Ha		
Y			0064	Lettuce	Ha		
Y			0066	Other vegetables grown in open (not tomatoes or glasshouse crops)	Ha	FDS: Artichokes (ARTC), Asparagus (ASPG), Other Vegetables (OVEG)	Partial. SAF identifies two crops classified in JAC as 0066. OVEG in SAF includes JAC codes 0055, 0057-0061, 0063, 0064. SAF does not identify glass-house crops?
Y			0067	Mixed vegetables – areas of individual crops that are too small to be shown separately	Ha		Not recorded explicitly in SAF – see OVEG.
Y			0068	Total vegetables	Ha	Sum all of the above.	Full? But need to clarify glass house crops.

1.1.7 Soft fruit grown in the open

M	*m*	*D*	*ID*	*JAC Question/Var*	*Unit*	*SAF Question/Variable*	*Notes*
Y			0070	Strawberries	Ha		No specific category in SAF.
Y			0071	Raspberries	Ha	FDS: Raspberries (RASP)	Full
Y			0072	Blackcurrants	Ha	FDS: Blackcurrants (BLR)	Full
Y			0075	Mixed and other kinds of soft fruit inc above where too small to show separately	Ha	FDS: Blackberries (BKB), mulberries (MLB), loganberries (LGB), whitecurrants (WRC), red-currants (RRC), gooseberries (GSB), bilberries (BLB), cranberries (CRB), soft fruit other (SFRT)	Partial. FDS includes straw-berries within this category.
Y			0076	Total soft fruit	Ha	(sum of above)	Full.

1.1.8 Bulbs, flowers and nursery stock grown in the open

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Var*	*Notes*
Y			0077	Bulbs grown for production of dry bulbs and/or cut flowers in the open	Ha	FDS: Flower bulbs and cut flowers (BSFS), bulbs/flowers (BFLO)	Compound Full – not differentiated in the same way.
Y			0078	Other flowers for cutting in the open not from bulbs (inc land prepared for the crop)	Ha		
Y			1709	Bedding & pot plants grown in open	Ha		
Y			0080	Hardy nursery stock in open – fruit stocks	Ha	FDS: Trees, shrubs and bushes (TSB)	Compound Full. TSB includes nursery stock, however, there will be changes to this crop code for 2008 because in certain situations the land that roses, shrubs and ornamental trees are grown on, will be eligible to be claimed under the SFP[20] scheme therefore a crop code for nurseries will be introduced.
Y			0081	Hardy nursery stock in open – roses and rose stocks	Ha		
Y			1710	Hardy nursery stock in open – shrubs	Ha		
Y			0082	Hardy nursery stock in open – ornamental trees	Ha		
Y			0083	Hardy nursery stock in open – other (herbaceous plants, alpines, etc)	Ha		
Y			0084	Total (sum of above)	Ha	Sum of above	Full.
Y			0085	Glass houses – walk in plastic	m2		Details of poly-tunnel and other protected crops are not specifically recorded in SAF.
Y			0086	Glass houses – glass clad	m2		
Y			0087	Area of which is tomatoes	m2		
Y			2036	Area of which is other fruit	m2		
Y			2037	Area of which is vegetables	m2		
Y			1711	Area of which is bedding and pot plants	m2		
Y			1943	Area of which is hardy nursery stock	m2		
	Y		1901	*Bulbs, flowers and nursery stock grown in the open*	Ha	These questions are used to back calculate some of those shown above and as such have not been matched here.	

1.1.9 Animal health and welfare plans

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Var*	*Notes*
		Y	2209	Do you have an animal health and welfare plan that has been agreed with your vet?	Y/N		Recorded in LMCMS (2A).

[20] Single Farm Payment

1.1.10 Pigs

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Variable*	*Notes*
Y		Y	0146	Sows in pig	Num	Indoor pigs (exc piglets) Outdoor pigs (exc piglets)	Mismatch between the sub-categories. The JAC divides up by type and weight while the SAF groups into indoor and outdoor pigs.
Y		Y	0147	Gilts in pig	Num		
Y		Y	0148	Other sows for breeding	Num		
Y		Y	0149	Barren sows for fattening	Num		
Y		Y	0150	Gilts 50kg and over, not yet in pig, but expected to be used for breeding	Num		
Y		Y	0151	Boars being used for service	Num		
Y		Y	0152	All other pigs 110kg+	Num		
Y		Y	0153	All other pigs 80-109kg	Num		
Y		Y	0154	All other pigs 50-79kg	Num		
Y		Y	0155	All other pigs 20-49kg	Num		
Y		Y	0156	All other pigs <20kg	Num		
	Y		0348	Sows and Gilts for breeding	Num		
	Y		0351	Other pigs	Num		
Y	Y	Y	0157	Total pigs	Num	Sum of indoor and outdoor pigs.	Full. Although a mismatch in the sub-categories, the sum of these should amount to the same.

1.1.11 Poultry

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Qu/Var*	*Notes*
Y		Y	0158	Fowls laying eggs for eating – hens in first laying season	Num		The SAF does not break poultry down into sub-categories.
Y		Y	0159	Fowls laying eggs for eating – moulted hens	Num		
Y		Y	0161	Fowls laying eggs for eating – pullets reared for laying	Num		
Y		Y	0160	Fowls of all ages for breeding – females laying eggs to hatch layer chicks	Num		
Y		Y	0162	Fowls of all ages for breeding – females laying eggs to hatch table chicks	Num		
Y		Y	0163	Fowls of all ages for breeding – cocks	Num		
Y		Y	0164	Broilers and other table fowls	Num		
Y		Y	1708	Turkeys	Num		
Y			2038	Ducks	Num		
Y			2039	Geese	Num		
Y	Y	Y	0167	Other poultry	Num		
Y	Y	Y	0170	Total poultry	Num	Poultry of all types and ages	Full.
Y	Y		2060	Apart from ducks and geese do any of the above have access to the outside	Y/N		Not recorded in SAF.
	Y		0352	*Laying fowls – chicks, pullets, hens*	Num	These questions are used to back calculate some of those shown above and as such have not been matched here.	

1.1.12 Cattle

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Var*	*Notes*
Y		Y	0100	Dairy cows and heifers in milk	Num	Dairy cows used for milk production;	Compound partial. The JAC contains many more sub-categories than the SAF and there is no definitive match. One option with all the SAF categories is shown for illustration. Seeking clarification of these SAF categories.
Y		Y	0102	Dairy cows and heifers not in milk	Num		
Y		Y	0104	Dairy heifers in calf 1st time 2yrs+	Num		
Y		Y	0106	Dairy heifers in calf 1st time under 2yrs	Num		
Y		Y	0101	Beef cows and heifers in milk	Num	Suckler cows;	
Y		Y	0103	Beef cows and heifers not in milk	Num		
Y		Y	0105	Beef heifers in calf 1st time 2yrs+	Num		
Y		Y	0107	Beef heifers in calf 1st time under 2yrs	Num		
Y	Y	Y	0114	Other cattle 1-2yrs male	Num	Other dairy and beef cattle 6-24mths;	
Y		Y	0115	Other cattle 1-2yrs Female for breeding (dairy)	Num		
Y		Y	0116	Other cattle 1-2yrs Female for breeding (beef)	Num		
Y		Y	0117	Other cattle 1-2yrs Female not for breeding	Num		
Y		Y	0118	Other cattle 6mth-1yr Male	Num		
Y		Y	0119	Other cattle 6mth-1yr Female	Num		
Y	Y	Y	0110	Other cattle 2yrs+ male	Num	Other dairy and beef cattle 24mths+	
Y		Y	0111	Other cattle 2yrs+ Female for breeding (dairy)	Num		
Y		Y	0112	Other cattle 2yrs+ Female for breeding (beef)	Num		
Y		Y	0113	Other cattle 2yrs+ Female not for breeding	Num		
Y		Y	0108	Bulls for service 2yrs+	Num		
Y		Y	0109	Bulls for service under 2yrs	Num		
Y		Y	0120	Other cattle under 6mth Male	Num		
Y		Y	0121	Other cattle under 6mth Female	Num		
Y	Y	Y	0122	Total Cattle	Num	Sum of above	Full or Compound partial?
	Y		0335	*All dairy cows plus dairy heifers in milk*	Num	These questions are used to back calculate some of those shown above and as such have not been matched here.	
	Y		0336	*All beef cows plus calved beef heifers*	Num		
	Y		0338	*Other cattle 2yrs+ Female*	Num		
	Y		0340	*Other cattle 1-2yrs female*	Num		
	Y		0341	*Other cattle under 1yr male*	Num		
	Y		0342	*Other cattle under 1yr female*	Num		

1.1.13 Calves and store cattle sold/bought in year to 1st June[21]

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Var*	*Notes*
Y			0133	Sold calves/stores under 6mths	Num		Cattle bought and sold not recorded in SAF?
Y			0134	Sold calves/stores 6mths-1yr	Num		
Y			1809	Sold calves/stores 1-2yrs	Num		
Y			1894	Sold calves/stores 2yrs+	Num		
Y			0135	Bought calves/stores under 6mths	Num		
Y			0136	Bought calves/stores 6mths-1yr	Num		
Y			1810	Bought calves/stores 1-2yrs	Num		
Y			1895	Bought calves/stores 2yrs+	Num		

[21] Excluding those for immediate slaughter

1.1.14 Sheep

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Var*	*Notes*
Y	Y		0139	Ewes used for breeding in most recent season	Num	Ewes and gimmers;	The JAC contains many more sub-categories than the SAF. Perhaps not possible to differentiate.
Y			0140	Rams to be used for service this year	Num		
Y			0141	Other sheep 1yr+ for breeding	Num	Ewe hoggs;	
Y		Y	0143	Other sheep 1yr+ not for breeding	Num		
Y			0144	Lambs	Num	Other sheep 6mth+	
		Y	0343	Ewes 1yr+ kept for breeding	Num		
		Y	0344	Shearling ewes/gimmers 1yr+ put to ram this year	Num		
		Y	0345	Shearling ewes/gimmers 1yr+ <u>not</u> put to ram this year	Num		
		Y	0142	Rams kept for service	Num		
		Y	0347	Ewes lambs < 1yr put to ram this year	Num		
		Y	0379	Ewe lambs < 1 yr for breeding in future years	Num		
		Y	0349	Ram lambs < 1 yr intended for service	Num		
		Y	0350	Other sheep and rams < 1 yr	Num		
Y	Y	Y	0145	Total sheep	Num	(sum of above)	Full
	Y		0346	*Other sheep*	Num	These questions are used to back calculate some of those shown above and as such have not been matched here.	

1.1.15 Miscellaneous livestock

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Variable*	*Notes*
Y	Y		0094	Deer (not wild)	Num	Farm deer – adult stags 27mth+ Farm deer – hinds 27mth+ Farm deer – juveniles 6-27mth	Full? SAF provides more categories than JAC so may be sufficient (unless other deer categories are omitted from SAF definition)
Y	Y		0095	Horses used in agriculture/horticulture	Num	Horses and ponies 6mth+	Partial. SAF restricts to 6mth+ and combines the categories from JAC.
Y	Y		0096	All other horses and ponies	Num		
Y			1712	Female goats that have kidded or will kid this year	Num	Goats 6mth+	Partial. SAF has a single category for goats and restricts by age.
Y			1713	Other female goats bred in previous years	Num		
Y			0098	All other goats and kids	Num		
	Y		2061	*Goats of all ages*	Num	These questions are used to back calculate some of those shown above and as such have not been matched here.	

1.1.16 Other farm livestock not mentioned elsewhere

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Qu/Var*	*Notes*
Y	Y		0171	Other livestock	Num	Llamas 6mth+, Alpacas 6mth+	The SAF does not provide an 'other' category but it includes llamas and alpacas which would be counted under the JAC other category.
Y	Y		0186	Specify type of livestock	Txt		

1.1.17 Labour – occupier/spouse doing farm work

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Variable*	*Notes*
Y	Y	Y	0177	Occupier full time, or	Age [22]		No labour details recorded in the SAF.
Y	Y	Y	0178	Occupier more than half-time, or	Age		
Y	Y	Y	0179	Occupier less than half-time	Age		
Y	Y	Y	0182	Spouse full time, or	Age		
Y	Y	Y	0183	Spouse more than half-time, or	Age		
Y	Y	Y	0184	Spouse less than half-time	Age		

1.1.18 All other labour at 1st June (M, m) or 2nd December (D)

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Variable*	*Notes*
Y			1714	Full-time male business partners	Num		No labour details recorded in the SAF.
Y			1715	Full-time male hired	Num		
Y			1716	Full-time male family	Num		
Y			1717	Full-time female business partners	Num		
Y			0192	Full-time female hired	Num		
Y			0193	Full-time female family	Num		
Y			1718	Part-time male business partners	Num		
Y			0194	Part -time male hired	Num		
Y			0195	Part -time male family	Num		
Y			1719	Part -time female business partners	Num		
Y			0196	Part -time female hired	Num		
Y			0197	Part -time female family	Num		
Y		Y	0198	Casual/seasonal male	Num		
Y		Y	0199	Casual/seasonal female	Num		
		Y	2104	Regular farm staff – full time male	Num		
		Y	0373	Regular farm staff – full time female	Num		
		Y	0375	Regular farm staff – part time male	Num		
		Y	0376	Regular farm staff – part time female	Num		
Y	Y	Y	0200	Total regular/casual staff (ex occupier/spouse)	Num		
	Y		0354	*Full-time hired*	Num	These questions are used to back calculate some of those shown above and as such have not been matched here.	
	Y		0366	*Full-time family*	Num		
	Y		0372	*Part-time hired*	Num		
	Y		0374	*Part-time family*	Num		
	Y		0377	*Casual/seasonal workers*	Num		

1.1.19 Contractors employed by you in the last 12 months

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Variable*	*Notes*
Y			2066	Number of person working days in last 12mth	Days		No labour details recorded in the SAF.

1.1.20 Other holdings in the same occupancy

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Var*	*Notes*
	Y		1896	Other holding owned or rented (not seasonally)			Covered by LBCF?
	Y		1897	Other holding owned or rented (not seasonally)			
	Y		1898	Other holding owned or rented (not seasonally)			
	Y		1899	Other holding owned or rented (not seasonally)			
	Y		1900	Other holding owned or rented (not seasonally)			

[22] These questions ask for indication of age (<55, 55-64, 65+)

The questions and codes used in the following tables are based on the 2007 December Census. The specific questions in the December Census alternate on a biannual basis so some of the questions and codes are not illustrated below. Since no machinery details are currently recorded in the SAF there is currently no potential to derive values for JAC questions from SAF data.

1.1.21 Tractors

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Variable*	*Notes*
		Y	0259	Caterpillar tracked tractors	Num		No machinery details recorded in the SAF.
		Y	2279	Tractors < 35hp	Num		
		Y	0263	Tractors 35 – 54hp	Num		
		Y	0264	Tractors 55 – 79hp	Num		
		Y	0266	Tractors 80 – 107hp	Num		
		Y	0267	Tractors 108 – 133hp	Num		
		Y	2280	Tractors 134 – 200hp	Num		
		Y	2281	Tractors > 201hp	Num		
		Y	0269	4-wheel drive tractors (inc above)	Num		

1.1.22 Cultivation

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Variable*	*Notes*
		Y	0270	PTO driven power harrows	Num		No machinery details recorded in the SAF.
		Y	0051	PTO driven rotary diggers and cultivators	Num		
		Y	0273	Mounted and semi-mounted disc harrows	Num		
		Y	0275	Trailed disc harrows	Num		
		Y	0054	Other mounted cultivators, harrows and hoes	Num		
		Y	0278	Other trailed cultivators, harrows and hoes	Num		
		Y	0280	Stone separators	Num		

1.1.23 Sowing

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Variable*	*Notes*
		Y	0282	Precision drills for root and vegetable seeds	Num		No machinery details recorded in the SAF.
		Y	0284	Seed only grain drills	Num		
		Y	0286	Combine seed and fertiliser grain drills	Num		
		Y	0289	Seedling transplanters	Num		
		Y	2040	Potato planters	Num		

1.1.24 Harvesting

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Variable*	*Notes*
		Y	0297	Mower conditioners	Num		No machinery details recorded in the SAF.
		Y	0299	Mower – cutter bar types	Num		
		Y	0301	Mower – drum disc and flail types	Num		
		Y	0303	Tedders, turners and siderakes	Num		
		Y	0305	Buckrakes	Num		
		Y	0307	Potato harvesters – spinners, elevator and shaker diggers	Num		
		Y	2041	Potato harvesters – complete harvesters	Num		
		Y	0312	Potato graders	Num		

1.1.25 Load handling and transport

M	*m*	*D*	*ID*	*JAC Question/Variable*	*ID*	*SAF Question/Variable*	*Notes*
		Y	0314	Wheeled, automatic bale accumulators and packers	Num		No machinery details recorded in the SAF.
		Y	0073	Linkage and loader attachment for big bale handling and transport	Num		
		Y	0074	Linkage and loader attachment for conventional bale handling and transport	Num		
		Y	0318	Fork lift trucks – rough terrain type	Num		
		Y	0320	Fork lift trucks – factory type	Num		
		Y	0322	Fork lift trucks – telescopic type	Num		
		Y	0324	General purpose tractor trailer < 6t capacity	Num		
		Y	0079	General purpose tractor trailer 6 – 12t capacity	Num		
		Y	0328	General purpose tractor trailer > 12t capacity	Num		
		Y	0062	Land rover or similar 4WD for farm use	Num		
		Y	0317	Lorries, vans and pickups < 2t capacity	Num		
		Y	0319	Lorries, vans and pickups 2t and over capacity	Num		
		Y	1654	3 and 4 wheeled ATVs	Num		
		Y	0334	8 wheel and other ATVs	Num		

1.1.26 Miscellaneous

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Unit*	*SAF Question/Var*	*Notes*
		Y	0330	Mounted hedge cutters	Num		No machinery details recorded in the SAF.
		Y	0333	Cattle weighing crushes	Num		

Generic Issues

- Land use information within the FDS of the SAF is collected on a per field basis rather than per holding in JAC so holding by holding comparisons require aggregation of FDS/SAF fields to the holding level. These fields to holdings relationships are held within the SIACS database.
- Consideration will also be given to the fact that the same questions might be asked but at different times of the year – for instance the SAF considers animal numbers as at 1st March while the census is as at 1st June.
- It can, in some circumstances, be ambiguous for claimants which SAF code is most appropriate for the land use. For example, 'bedding and pot plants grown in the open' could be claimed under 'bulbs/flowers' (BFLO) or perhaps even 'trees, shrubs and bushes' (TSB). In this case the error would not be significant for the calculation of payments (?) since both are ineligible land uses. Errors within eligible categories with same payment regime are similarly insignificant for payment. In both cases, however, these errors may result in differences with the JAC.
- Energy cropping – biomass, short rotation coppice etc. Some non-food activity can be carried out on set aside land (including energy cropping e.g. oil seed rape for industrial use, short rotation coppice, etc). If this is the case, should that area be recorded under JAC item 0003 and nowhere else to keep the area totals consistent? (It may help to note that where crops fall under the ECS this isn't an issue, as areas subject to an application for ECS may not be counted as being set aside).

Annex II: Comparing Regulation with Item Codes

This section meets objective i.i by comparing and contrasting the underlying requirements of the single application form (SAF) and the June agricultural census (JAC).

Introduction
The EU regulation provided for this project covers a number of main commodities and activities collected for both the JAC and the SAF. As regards the SAF regulations, Article 12 of Commission Regulation (EC) No. 796/2004 states the following:-

The single application shall contain all information necessary to establish eligibility for the aid, in particular:

> (a) the identity of the farmer;
> (b) the aid scheme or schemes concerned;
> (c) the identification of the payment entitlements in accordance with the identification and registration system provided for in Article 7 for the purposes of the single payment scheme, broken down by set-aside entitlements and other entitlements;
> (d) particulars permitting identification of all agricultural parcels on the holding, their area expressed in hectares to two decimal places, their location and, where applicable, their use and whether the agricultural parcel is irrigated;

What follows is the JAC item codes matched, where possible, with commission regulations specific in Table 1.

1.1.27 Area of holding recorded in corporate register

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y	Y	Y	n/a	Area you own	Commission Decision 98/377/EC
Y	Y	Y	n/a	Area you rent from another person under a full tenancy	Commission Decision 98/377/EC??
Y	Y	Y	n/a	Total area	Commission Decision 98/377/EC

1.1.28 Details of owned and rented area of holding

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y	Y		2249	Owned croft	Commission Decision 98/377/EC
Y	Y		2250	Other owned area	Commission Decision 98/377/EC
Y	Y	Y	0011	Total owned area	Commission Decision 98/377/EC
Y	Y		2251	Rented croft	Commission Decision 98/377/EC
Y	Y		2252	Small Landowners Act tenancy (only outside crofting counties)	??
Y	Y		2160	91 Act tenancy : Any tenancy for more than 1 year with full security of tenure and succession rights	??
Y	Y		2161	91 Act, Ltd Partnership : Any tenancy for more than 1 year where the tenant is a partnership	??
Y	Y		2053	Years specified in lease (2161)	??
Y	Y		2158	SLDT[23] : entered into on or after Martinmas[24] 2003 for 1 to 5 years	??
Y	Y		2051	Years specified in lease (2158)	??
Y	Y		2159	LDT[25]: entered into on or after Martinmas 2003 for 15 years or more with a specific end date	??
Y	Y		2052	Years specified in lease (2159)	??
Y	Y	Y	0007	Total area you rent from another person under a full tenancy (2251+2252+2160+2161+2158+2159)	??
Y	Y	Y	0012	Total area (0011+0007)	??

1.1.29 Seasonal rents

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y	Y	Y	0001	Area of land that you let seasonally to another person	Commission Decision 98/377/EC
Y	Y	Y	2229	If any of the land entered (0001) is let out under SLDT please state the number of SLDT leases	??
Y	Y	Y	2230	Please state the combined area of any SLDT leases (2229)	??
Y	Y	Y	0002	Area of land rented seasonally from another person (not included elsewhere)	??

23 Short Limited Duration Tenancy
24 28th November
25 Limited Duration Tenancy

1.1.30 Crops

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y	Y		0003	Land set aside under the SFPS (inc non-food)	Commission Decision 98/377/EC (Fallow land and set-aside land)
Y			0015	Triticale for combining	Council Regulation 837/90
Y	Y	Y	0014	Wheat for combining	Council Regulation 837/90
Y		Y	0016	Winter barley f' combine	Council Regulation 837/90
Y			0018	Spring barley f' combine	Council Regulation 837/90
Y		Y	0017	Winter oats f' combining	Council Regulation 837/90
Y			0020	Spring oats f' combining	Council Regulation 837/90
Y			0022	Mix grain (wheat, oats, barley) for threshing	Council Regulation 837/90
Y		Y	0019	Winter rape for oilseed	Council Regulation 837/90
Y			0023	Spring rape for oilseed	Council Regulation 837/90
Y			0021	Linseed	Council Regulation 837/90
Y			0024	Seed potatoes	Council Regulation 837/90
Y			0025	Ware potato harv <= 31/7	Council Regulation 837/90
Y			0026	Ware potato harv > 31/7	Council Regulation 837/90
Y			0027	Beans for combining	Council Regulation 837/90
Y			0028	Peas for combining	Council Regulation 837/90
Y			2034	Lupins	Council Regulation 837/90
Y	Y		0029	Turnips/swedes f' stock	Council Regulation 837/90
Y			0031	Rape for stock (not OS)	Council Regulation 837/90
Y			2059	Maize	Council Regulation 837/90
Y			0030	Kale/cabbage for stock	Council Regulation 837/90
Y			0032	Fodder beet	Council Regulation 837/90
Y	Y		0034	Other crops f' stock inc cereals for silage	Council Regulation 837/90
Y	Y		0035	Vegetables for human consumption grown in the open	Council Regulation 837/90
Y			0036	Orchard fruit (apples, plums) inc maiden trees for sale or manufacture	Council Regulation 837/90
Y	Y		0037	Soft fruits	Council Regulation 837/90
Y			0038	Other crops (not grass or set-aside)	Council Regulation 837/90
					Council Regulation 837/90
Y			0041	Unspecified crops (other crops less bulbs etc)	Council Regulation 837/90
Y			0185	Unspecified crops	Council Regulation 837/90
Y	Y		0039	Bare fallow not set-aside	Council Regulation 837/90
Y	Y		0040	Total crops, fallow, set-aside	Council Regulation 837/90
	Y		0254	*Oats/mixed grain for thresh'*	Council Regulation 837/90
	Y		1680	*Rape for oilseed*	Council Regulation 837/90
	Y		0378	*Potatoes*	Council Regulation 837/90

1.1.31 Grass, hay, straw and silage

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y			0042	Grass for mowing < 5 years	Council Regulation 837/90
Y			0044	Grass for grazing < 5 years	Council Regulation 837/90
Y			0043	Grass for mowing >= 5 years	Council Regulation 837/90
Y			0045	Grass for grazing >= 5 years	Council Regulation 837/90
Y	Y		0046	Total crops and grass	Council Regulation 837/90
Y	Y		0047	Rough grazings situated within farming unit (not woods, roads, common grazings or seasonal land)	??
Y	Y		0048	Woodland (not orchards) forming part of the holding inc commercial etc	??
Y	Y		0049	Other land (road, yards, buildings (not glasshouses, ponds, derelict land)	??
Y	Y		0050	Area of all land to which this form relates	Council Regulation 837/90
		Y	0250	Grass area sown this year – undersown to cereal or other crop	??
		Y	0251	Grass area sown this year – directly sown or reseeded	??
		Y	0252	Grass cut for hay this year – area cut	??
		Y	0255	Grass cut for hay this year – quantity of hay made	??
		Y	0253	Grass cut for silage or haylage this year – area cut	??
		Y	0256	Grass cut for silage or haylage this year – quantity of silage of haylage	??
		Y	0257	Silage other than grass, made on the holding this year	??
		Y	0258	Feeding straw stock on the holding at 3rd Dec this year	??
	Y		0262	*Grass for mowing this season*	??
	Y		0265	*Grass for grazing this season*	??

1.1.32 Vegetables for human consumption

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y			0052	Peas for canning, freezing, drying (not green for market or stock)	Council Regulation 837/90
Y			0053	Beans for canning, freezing, drying (not green for market or stock)	Council Regulation 837/90
Y			0056	Turnips and swedes	Council Regulation 837/90
Y			0065	Rhubarb	??
Y			0055	Leeks	Council Regulation 837/90
Y			0057	Cabbages and savoys (summer/autumn)	Council Regulation 837/90
Y			0058	Cabbages and savoys (other)	Council Regulation 837/90
Y			0059	Brussels sprouts	Council Regulation 837/90
Y			0060	Calabrese	Council Regulation 837/90
Y			0061	Cauliflower, broccoli-heading varieties	Council Regulation 837/90
Y			0063	Carrots	Council Regulation 837/90
Y			0064	Lettuce	Council Regulation 837/90
Y			0066	Other vegetables grown in open (not tomatoes or glasshouse crops)	Council Regulation 837/90
Y			0067	Mixed vegetables – areas of individual crops that are too small to be shown separately	Council Regulation 837/90
Y			0068	Total vegetables	Council Regulation 837/90

1.1.33 Soft fruit grown in the open

M	*m*	*D*	*ID*	*JAC Question/Var*	
Y			0070	Strawberries	Council Regulation 837/90 (Fresh vegetables (including strawberries))
Y			0071	Raspberries	Commission Decision 98/377/EC (Fruit and berry plantations)
Y			0072	Blackcurrants	Commission Decision 98/377/EC
Y			0075	Mixed and other kinds of soft fruit inc above where too small to show separately	Commission Decision 98/377/EC
Y			0076	Total soft fruit	Commission Decision 98/377/EC

1.1.34 Bulbs, flowers and nursery stock grown in the open

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y			0077	Bulbs grown for production of dry bulbs and/or cut flowers in the open	Council Regulation 837/90
Y			0078	Other flowers for cutting in the open not from bulbs (inc land prepared for the crop)	Council Regulation 837/90
Y			1709	Bedding & pot plants grown in open	Council Regulation 837/90
Y			0080	Hardy nursery stock in open – fruit stocks	Council Regulation 837/90
Y			0081	Hardy nursery stock in open – roses and rose stocks	Council Regulation 837/90
Y			1710	Hardy nursery stock in open – shrubs	Council Regulation 837/90
Y			0082	Hardy nursery stock in open – ornamental trees	Council Regulation 837/90
Y			0083	Hardy nursery stock in open – other (herbaceous plants, alpines, etc)	Council Regulation 837/90
Y			0084	Total (sum of above)	Council Regulation 837/90
Y			0085	Glass houses – walk in plastic	Council Regulation 837/90
Y			0086	Glass houses – glass clad	Council Regulation 837/90
Y			0087	Area of which is tomatoes	Council Regulation 837/90
Y			2036	Area of which is other fruit	Council Regulation 837/90
Y			2037	Area of which is vegetables	Council Regulation 837/90
Y			1711	Area of which is bedding and pot plants	Council Regulation 837/90
Y			1943	Area of which is hardy nursery stock	Council Regulation 837/90
	Y		1901	*Bulbs, flowers and nursery stock grown in the open*	Council Regulation 837/90

All covered by Council Regulation 837/90 ‘bulbs and flower stock’

1.1.35 Animal health and welfare plans

M	*m*	*D*	*ID*	*JAC Question/Variable*	
		Y	2209	Do you have an animal health and welfare plan that has been agreed with your vet?	??

1.1.36 Pigs

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y		Y	0146	Sows in pig	Council Directive 93/23/EEC
Y		Y	0147	Gilts in pig	Council Directive 93/23/EEC
Y		Y	0148	Other sows for breeding	Council Directive 93/23/EEC
Y		Y	0149	Barren sows for fattening	Council Directive 93/23/EEC
Y		Y	0150	Gilts 50kg and over, not yet in pig, but expected to be used for breeding	Council Directive 93/23/EEC
Y		Y	0151	Boars being used for service	Council Directive 93/23/EEC
Y		Y	0152	All other pigs 110kg+	Council Directive 93/23/EEC
Y		Y	0153	All other pigs 80-109kg	Council Directive 93/23/EEC
Y		Y	0154	All other pigs 50-79kg	Council Directive 93/23/EEC
Y		Y	0155	All other pigs 20-49kg	Council Directive 93/23/EEC
Y		Y	0156	All other pigs <20kg	Council Directive 93/23/EEC
	Y		0348	Sows and Gilts for breeding	Council Directive 93/23/EEC
	Y		0351	Other pigs	Council Directive 93/23/EEC
Y	Y	Y	0157	Total pigs	Council Directive 93/23/EEC

1.1.37 Poultry

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y		Y	0158	Fowls laying eggs for eating – hens in first laying season	*Commission Decision 98/377/EC*
Y		Y	0159	Fowls laying eggs for eating – moulted hens	
Y		Y	0161	Fowls laying eggs for eating – pullets reared for laying	
Y		Y	0160	Fowls of all ages for breeding – females laying eggs to hatch layer chicks	
Y		Y	0162	Fowls of all ages for breeding – females laying eggs to hatch table chicks	
Y		Y	0163	Fowls of all ages for breeding – cocks	
Y		Y	0164	Broilers and other table fowls	
Y		Y	1708	Turkeys	
Y			2038	Ducks	
Y			2039	Geese	
Y	Y	Y	0167	Other poultry	
Y	Y	Y	0170	Total poultry	
Y	Y		2060	Apart from ducks and geese do any of the above have access to the outside	
	Y		0352	*Laying fowls – chicks, pullets, hens*	

Commission Decision 98/337/EC : (Poultry: Number of farms and heads by size of farm (UAA) and size of broiler flock/and laying flock)

1.1.38 Cattle

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y		Y	0100	Dairy cows and heifers in milk	Council Directive 93/24/EEC
Y		Y	0102	Dairy cows and heifers not in milk	Council Directive 93/24/EEC
Y		Y	0104	Dairy heifers in calf 1st time 2yrs+	Council Directive 93/24/EEC
Y		Y	0106	Dairy heifers in calf 1st time under 2yrs	Council Directive 93/24/EEC
Y		Y	0101	Beef cows and heifers in milk	Council Directive 93/24/EEC
Y		Y	0103	Beef cows and heifers not in milk	Council Directive 93/24/EEC
Y		Y	0105	Beef heifers in calf 1st time 2yrs+	Council Directive 93/24/EEC
Y		Y	0107	Beef heifers in calf 1st time under 2yrs	Council Directive 93/24/EEC
Y	Y	Y	0114	Other cattle 1-2yrs male	Council Directive 93/24/EEC
Y		Y	0115	Other cattle 1-2yrs Female for breeding (dairy)	Council Directive 93/24/EEC
Y		Y	0116	Other cattle 1-2yrs Female for breeding (beef)	Council Directive 93/24/EEC
Y		Y	0117	Other cattle 1-2yrs Female not for breeding	Council Directive 93/24/EEC
Y		Y	0118	Other cattle 6mth-1yr Male	Council Directive 93/24/EEC
Y		Y	0119	Other cattle 6mth-1yr Female	Council Directive 93/24/EEC
Y	Y	Y	0110	Other cattle 2yrs+ male	Council Directive 93/24/EEC
Y		Y	0111	Other cattle 2yrs+ Female for breeding (dairy)	Council Directive 93/24/EEC
Y		Y	0112	Other cattle 2yrs+ Female for breeding (beef)	Council Directive 93/24/EEC
Y		Y	0113	Other cattle 2yrs+ Female not for breeding	Council Directive 93/24/EEC
Y		Y	0108	Bulls for service 2yrs+	Council Directive 93/24/EEC
Y		Y	0109	Bulls for service under 2yrs	Council Directive 93/24/EEC
Y		Y	0120	Other cattle under 6mth Male	Council Directive 93/24/EEC
Y		Y	0121	Other cattle under 6mth Female	Council Directive 93/24/EEC
Y	Y	Y	0122	Total Cattle	Council Directive 93/24/EEC
	Y		0335	*All dairy cows plus dairy heifers in milk*	Council Directive 93/24/EEC
	Y		0336	*All beef cows plus calved beef heifers*	Council Directive 93/24/EEC
	Y		0338	*Other cattle 2yrs+ Female*	Council Directive 93/24/EEC
	Y		0340	*Other cattle 1-2yrs female*	Council Directive 93/24/EEC
	Y		0341	*Other cattle under 1yr male*	Council Directive 93/24/EEC
	Y		0342	*Other cattle under 1yr female*	Council Directive 93/24/EEC

1.1.39 Calves and store cattle sold/bought in year to 1st June[26]

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Council Directive 93/24/EEC*
Y			0133	Sold calves/stores under 6mths	Council Directive 93/24/EEC
Y			0134	Sold calves/stores 6mths-1yr	Council Directive 93/24/EEC
Y			1809	Sold calves/stores 1-2yrs	Council Directive 93/24/EEC
Y			1894	Sold calves/stores 2yrs+	Council Directive 93/24/EEC
Y			0135	Bought calves/stores under 6mths	Council Directive 93/24/EEC
Y			0136	Bought calves/stores 6mths-1yr	Council Directive 93/24/EEC
Y			1810	Bought calves/stores 1-2yrs	Council Directive 93/24/EEC
Y			1895	Bought calves/stores 2yrs+	Council Directive 93/24/EEC

[26] Excluding those for immediate slaughter

1.1.40 Sheep

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Council Directive 93/25*
Y	Y		0139	Ewes used for breeding in most recent season	Council Directive 93/25
Y			0140	Rams to be used for service this year	Council Directive 93/25
Y			0141	Other sheep 1yr+ for breeding	Council Directive 93/25
Y		Y	0143	Other sheep 1yr+ not for breeding	Council Directive 93/25
Y			0144	Lambs	*Council Directive 93/25*
		Y	0343	Ewes 1yr+ kept for breeding	Council Directive 93/25
		Y	0344	Shearling ewes/gimmers 1yr+ put to ram this year	Council Directive 93/25
		Y	0345	Shearling ewes/gimmers 1yr+ not put to ram this year	Council Directive 93/25
		Y	0142	Rams kept for service	Council Directive 93/25
		Y	0347	Ewes lambs < 1yr put to ram this year	*Council Directive 93/25*
		Y	0379	Ewe lambs < 1 yr for breeding in future years	Council Directive 93/25
		Y	0349	Ram lambs < 1 yr intended for service	Council Directive 93/25
		Y	0350	Other sheep and rams < 1 yr	Council Directive 93/25
Y	Y	Y	0145	Total sheep	Council Directive 93/25
	Y		0346	*Other sheep*	Council Directive 93/25

1.1.41 Miscellaneous livestock

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y	Y		0094	Deer (not wild)	Are these covered as bovine??
Y	Y		0095	Horses used in agriculture/horticulture	
Y	Y		0096	All other horses and ponies	
Y			1712	Female goats that have kidded or will kid this year	Council Directive 93/25
Y			1713	Other female goats bred in previous years	Council Directive 93/25
Y			0098	All other goats and kids	Council Directive 93/25
	Y		2061	*Goats of all ages*	Council Directive 93/25

1.1.42 Other farm livestock not mentioned elsewhere

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y	Y		0171	Other livestock	??
Y	Y		0186	Specify type of livestock	??

1.1.43 Labour – occupier/spouse doing farm work

M	*m*	*D*	*ID*	*JAC Question/Variable*	*Commission Decision 98/377/EC*
Y	Y	Y	0177	Occupier full time, or	Commission Decision 98/377/EC
Y	Y	Y	0178	Occupier more than half-time, or	Commission Decision 98/377/EC
Y	Y	Y	0179	Occupier less than half-time	Commission Decision 98/377/EC
Y	Y	Y	0182	Spouse full time, or	Commission Decision 98/377/EC
Y	Y	Y	0183	Spouse more than half-time, or	Commission Decision 98/377/EC
Y	Y	Y	0184	Spouse less than half-time	Commission Decision 98/377/EC

1.1.44 All other labour at 1st June (M, m) or 2nd December (D)

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y			1714	Full-time male business partners	Commission Decision 98/377/EC
Y			1715	Full-time male hired	Commission Decision 98/377/EC
Y			1716	Full-time male family	Commission Decision 98/377/EC
Y			1717	Full-time female business partners	Commission Decision 98/377/EC
Y			0192	Full-time female hired	Commission Decision 98/377/EC
Y			0193	Full-time female family	Commission Decision 98/377/EC
Y			1718	Part-time male business partners	Commission Decision 98/377/EC
Y			0194	Part -time male hired	Commission Decision 98/377/EC
Y			0195	Part -time male family	Commission Decision 98/377/EC
Y			1719	Part -time female business partners	Commission Decision 98/377/EC
Y			0196	Part -time female hired	Commission Decision 98/377/EC
Y			0197	Part -time female family	Commission Decision 98/377/EC
Y		Y	0198	Casual/seasonal male	Commission Decision 98/377/EC
Y		Y	0199	Casual/seasonal female	Commission Decision 98/377/EC
		Y	2104	Regular farm staff – full time male	Commission Decision 98/377/EC
		Y	0373	Regular farm staff – full time female	Commission Decision 98/377/EC
		Y	0375	Regular farm staff – part time male	Commission Decision 98/377/EC
		Y	0376	Regular farm staff – part time female	Commission Decision 98/377/EC
Y	Y	Y	0200	Total regular/casual staff (ex occupier/spouse)	Commission Decision 98/377/EC
	Y		0354	*Full-time hired*	Commission Decision 98/377/EC
	Y		0366	*Full-time family*	Commission Decision 98/377/EC
	Y		0372	*Part-time hired*	Commission Decision 98/377/EC
	Y		0374	*Part-time family*	Commission Decision 98/377/EC
	Y		0377	*Casual/seasonal workers*	Commission Decision 98/377/EC

1.1.45 Contractors employed by you in the last 12 months

M	*m*	*D*	*ID*	*JAC Question/Variable*	
Y			2066	Number of person working days in last 12mth	??

1.1.46 Other holdings in the same occupancy

M	*m*	*D*	*ID*	*JAC Question/Variable*	
	Y		1896	Other holding owned or rented (not seasonally)	??
	Y		1897	Other holding owned or rented (not seasonally)	??
	Y		1898	Other holding owned or rented (not seasonally)	??
	Y		1899	Other holding owned or rented (not seasonally)	??
	Y		1900	Other holding owned or rented (not seasonally)	??

ANNEX III: Notes from the SWOT Analysis from SAF-JAC

Group 1

Strengths revealed by the comparative analysis

- Coverage – JAC = population
- Expertise – two groups with skills and understandings of the datasets.
- Overlap – 89% of area is common
- Specificity – JAC = holding level livestock data of use for secondary functions such as disease modelling etc.
- Accuracy – payments and inspections mean that SAF may be more accurate for some key items.
- Complementarity – can missing items be provided by the other dataset
- Willingness to share data is there (providing all data sharing legalities have been resolved) .

Weaknesses revealed by the comparative analysis

- Problems of resolving Businesses, Holdings and other entities – what are the definitions?
- Mismatch in dates on which the data are captured
- Difficulties of exchanging data
- Response rate of JAC c. 70% - how effective is imputation
- Not all detail needed for claim processing in SAF so not checked is it accurate.
- SAF not a full population
- SAF is a changing population so annual trends do not represent actual trends within the industry
- Livestock numbers too far apart.
- How to resolve the differences – which is correct/more correct?
- How to even up the data elements.

Opportunities – of combining the two datasets

- Efficiency – for farmers and for streamlining processing by SG, possible cost savings, or opportunities for staff to take on additional tasks.
- Opportunity to cross check the data – more complete coverage
- Savings on IT support if only one dataset
- Simplified SAF – if drop all questions that appear in JAC

Threats – of combining the two datasets

- Need to meet payment dates – high profile failure if not met. Claim processing must not be affected.
- Need to resolve requirements – what is needed and by whom – statutory and highly desirable.
- Loss of detail from JAC if just the SAF classes are used
- One form could be too large
- Confusion from the mixture of needs
- Partial integration the worst case – would leave a complex situation
- Different requirements (esp in the future) may mean that can’t amalgamate – what will the SAF requirements be in the future – uncertain.

Group 2

Strengths revealed by the comparative analysis

- Comparison of JAC crops into and from SAF (EIDS) looked very promising

Weaknesses revealed by the comparative analysis

- Different definitions
- Different dates
- JAC has 30% non-completion (and therefore imputed values) may be way out for individual holdings but accurate at aggregate level
- JAC will the requirements under the 1947 Act ever change, i.e. is there a resistance to change within the JAC.
- Too many farm activity codes
- Different populations for each
- Different responsibilities for those completing each
- Lack of common identifiers, i.e. BRNS – need for a common identifiable reference to hang on otherwise real problems integrating from an IT point of view

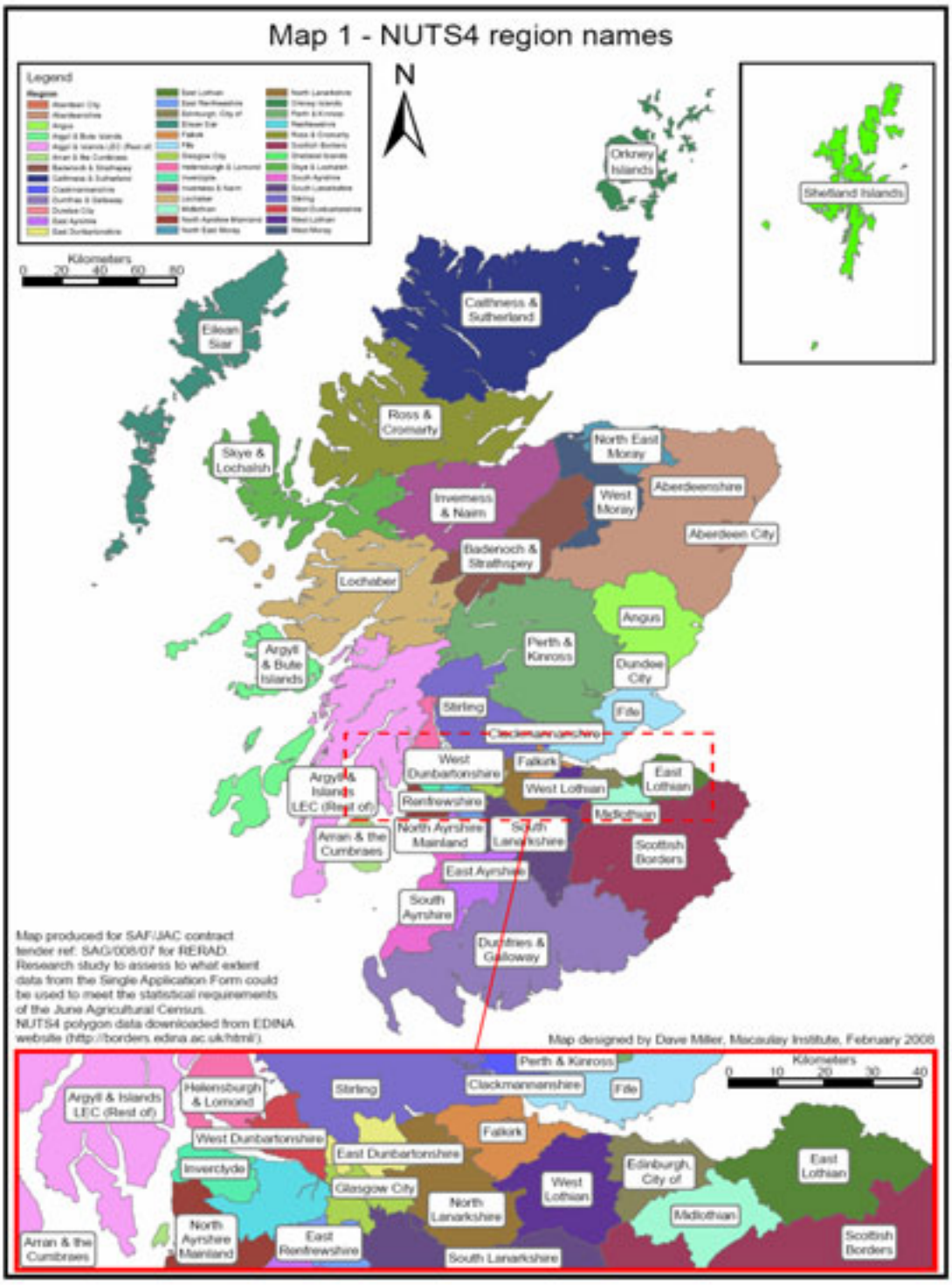
Opportunities – of combining the two datasets

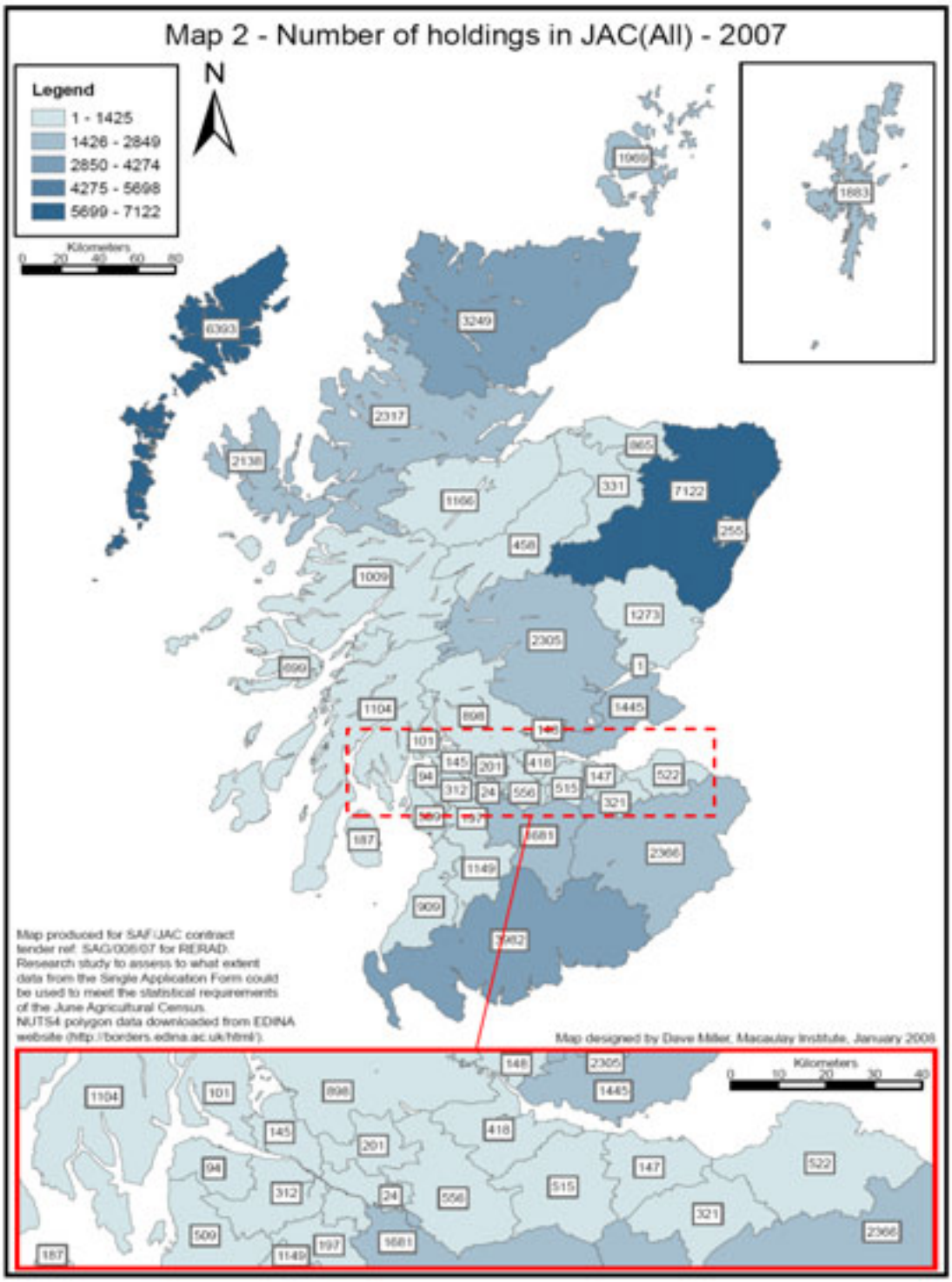
- Rationalise number of farm activity codes as far too many in existence
- SAF livestock categories are simplified as little as possible
- JAC figures and categories equally useful
- Simplification for the farmer
- Serious look at forms and questions as asking the same questions
- Why fill out 2 forms in May/June when one would do. Should be part of SEARS.
- SAF livestock figures could be gathered at holding level
- SAF dates and sheep inventory dates are flexible
- Streamline and reduce perceived bureaucracy
- Comparisons with SAF should allow evaluation and improvement of the JAC imputation, which could then feed into a fresh comparison

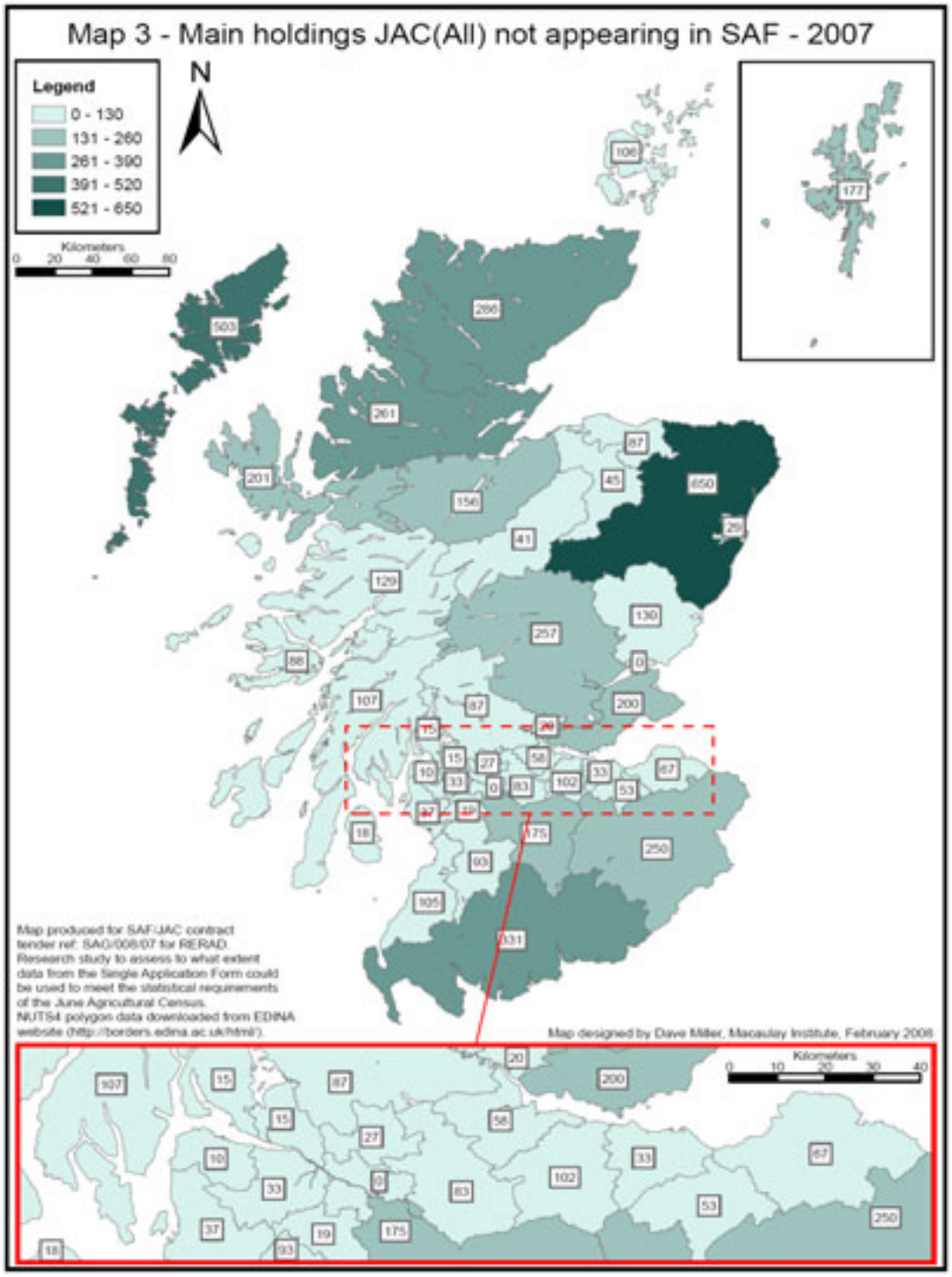
Threats – of combining the two datasets

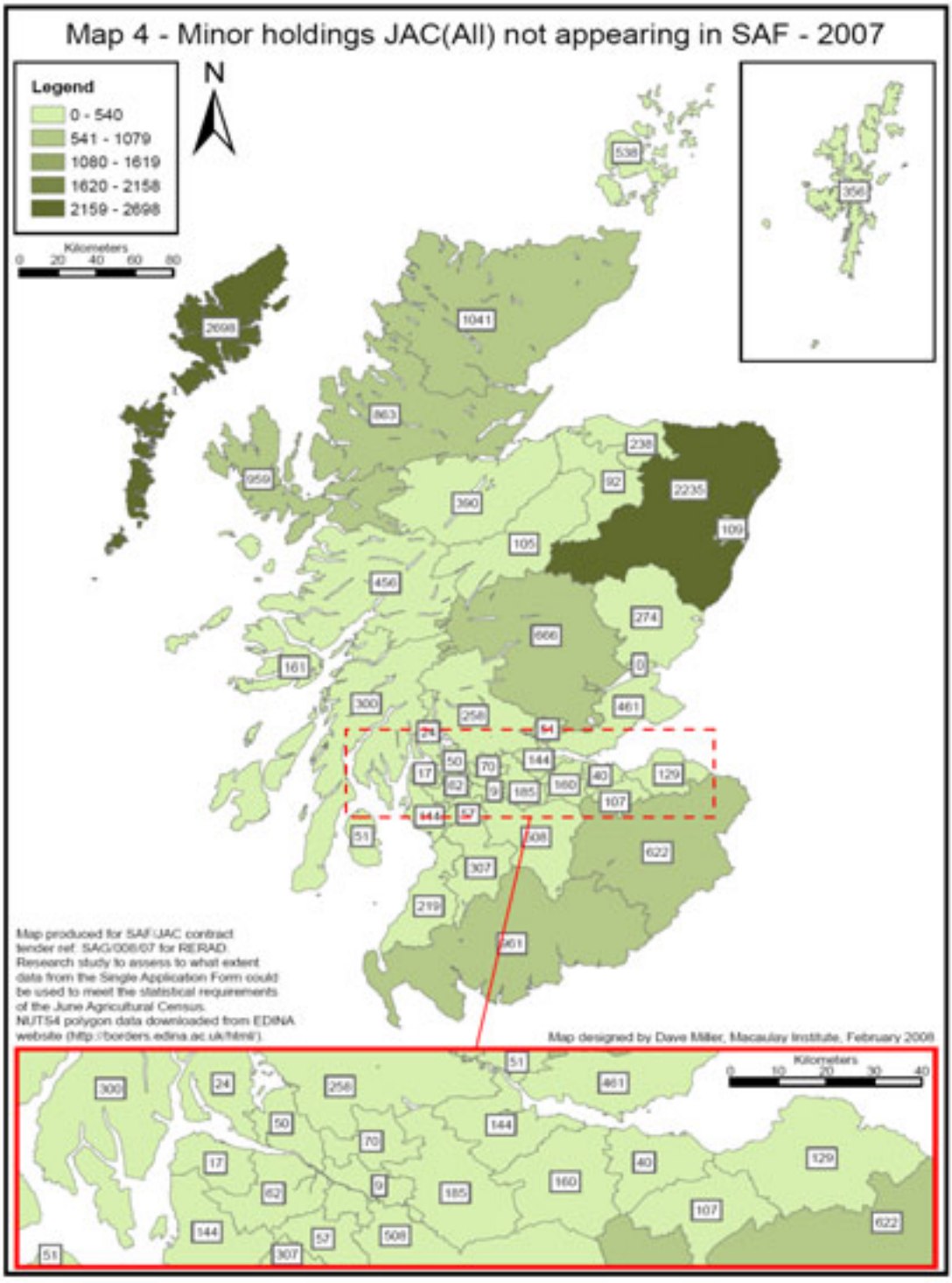
- Increased complexity of payment process could lead to system difficulties and lead to payment delays.
- Could actually become less efficient and more costly to administer than current.
- Introduction of SRDP onto SAF from 20008-9 onwards may make SAF too complicated
- How serious is the business to change (is there any scope for change) will either one (JAC/SAF) ever do the job of the other

ANNEX IV: NUTS4 Regional Analysis – 2007 Case Study


Map 1 - NUTS4 region names
Legend
N
Kilometers
0 20 40 60 80
Orkney Islands
Shetland Islands
Caithness & Sutherland
Eilean Siar
Ross & Cromarty
Skye & Lochalsh
Inverness & Nairn
North East Moray
West Moray
Aberdeenshire
Aberdeen City
Badenoch & Strathspey
Lochaber
Angus
Perth & Kinross
Dundee City
Argyll & Bute Islands
Stirling
Fife
Clackmannanshire
West Dunbartonshire
Falkirk
East Lothian
Argyll & Islands LEC (Rest of)
Renfrewshire
West Lothian
Midlothian
North Ayrshire Mainland
South Lanarkshire
Scottish Borders
Arran & the Cumbraes
East Ayrshire
South Ayrshire
Dumfries & Galloway
Map produced for SAF/JIAC contract tender ref: SAG/008/07 for RERAD. Research study to assess to what extent data from the Single Application Form could be used to meet the statistical requirements of the June Agricultural Census. NUTS4 polygon data downloaded from EDINA website (http://borders.edina.ac.uk/html/).
Map designed by Dave Miller, Macaulay Institute, February 2008
Kilometers
0 10 20 30 40
Argyll & Islands LEC (Rest of)
Helensburgh & Lomond
Inverclyde
Glasgow City
North Lanarkshire
Edinburgh, City of
Arran & the Cumbraes
North Ayrshire Mainland
East Renfrewshire


Map 2 - Number of holdings in JAC(All) - 2007
Legend
1 - 1425
1426 - 2849
2850 - 4274
4275 - 5698
5699 - 7122
N
Kilometers
0 20 40 60 80
1069
1883
6393
3249
2317
2138
865
7122
331
1166
255
458
1009
1273
2305
699
1
1104
1445
898
101
145
201
418
147
522
94
312
24
556
515
321
187
2366
1149
909
Map produced for SAF/JAC contract
tender ref: SAG/006/07 for RERAD.
Research study to assess to what extent
data from the Single Application Form could
be used to meet the statistical requirements
of the June Agricultural Census.
NUTS4 polygon data downloaded from EDINA
website (http://borders.edina.ac.uk/html/).
Map designed by Dave Miller, Macaulay Institute, January 2008
Kilometers
0 10 20 30 40


Map 3 - Main holdings JAC(All) not appearing in SAF - 2007
Legend
0 - 130
131 - 260
261 - 390
391 - 520
521 - 650
N
Kilometers
0 20 40 60 80
106
177
303
280
261
201
87
45
650
156
41
129
257
130
0
107
87
200
18
175
250
69
105
331
Map produced for SAF:JAC contract
tender ref: SAG/008/07 for RERAD.
Research study to assess to what extent
data from the Single Application Form could
be used to meet the statistical requirements
of the June Agricultural Census.
NUTS4 polygon data downloaded from EDINA
website (http://borders.edina.ac.uk/html/).
Map designed by Dave Miller, Macaulay Institute, February 2008
Kilometers
0 10 20 30 40


Map 4 - Minor holdings JAC(All) not appearing in SAF - 2007
Legend
0 - 540
541 - 1079
1080 - 1619
1620 - 2158
2159 - 2698
N
Kilometers
0 20 40 60 80
538
356
2698
1041
863
238
959
92
2235
390
100
105
456
274
666
0
161
300
461
258
24
54
50
70
144
17
62
9
185
160
40
129
107
44
57
51
508
622
307
219
261
Map produced for SAF\JAC contract
tender ref: SAG/008/07 for RERAD.
Research study to assess to what extent
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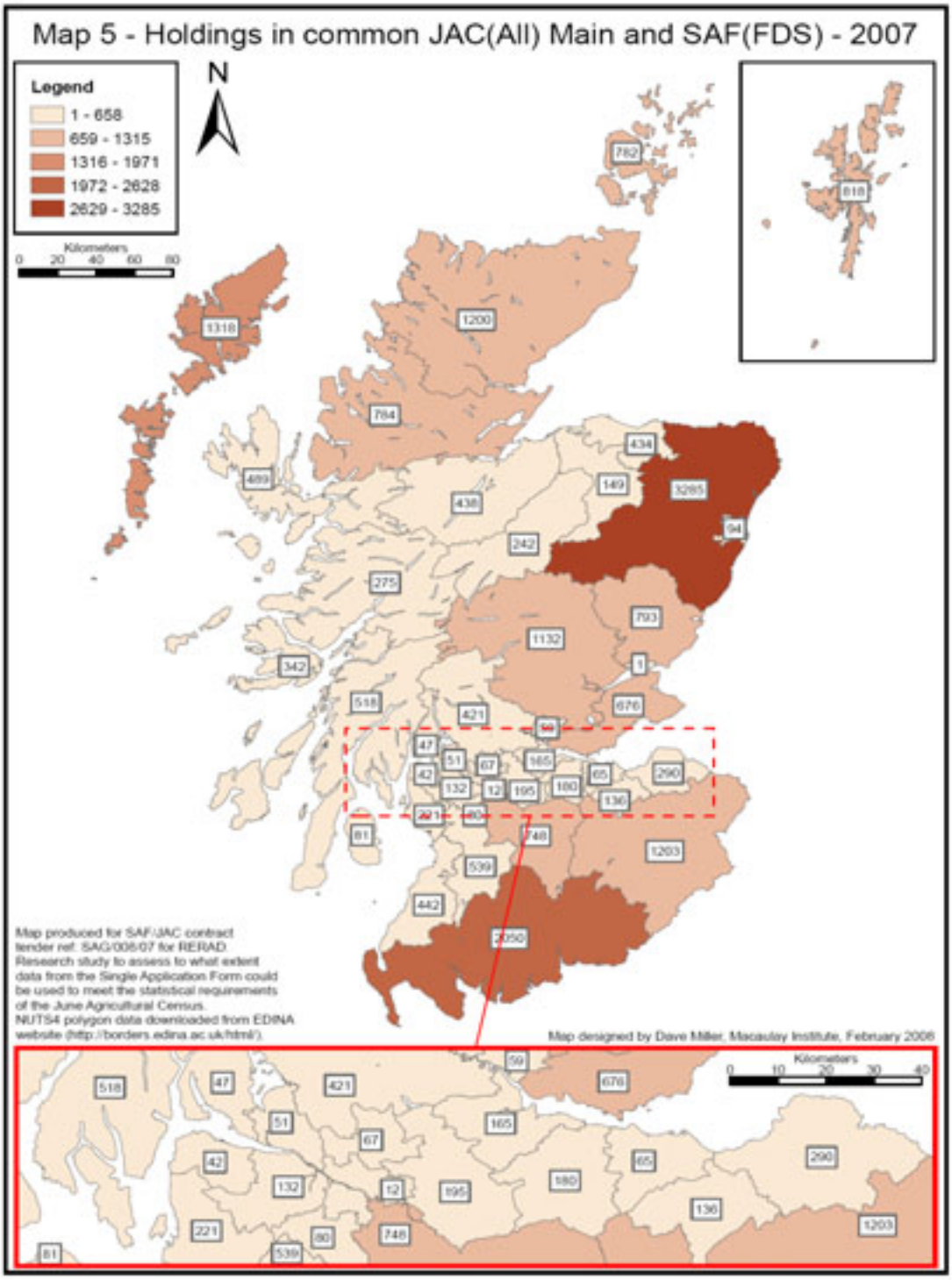
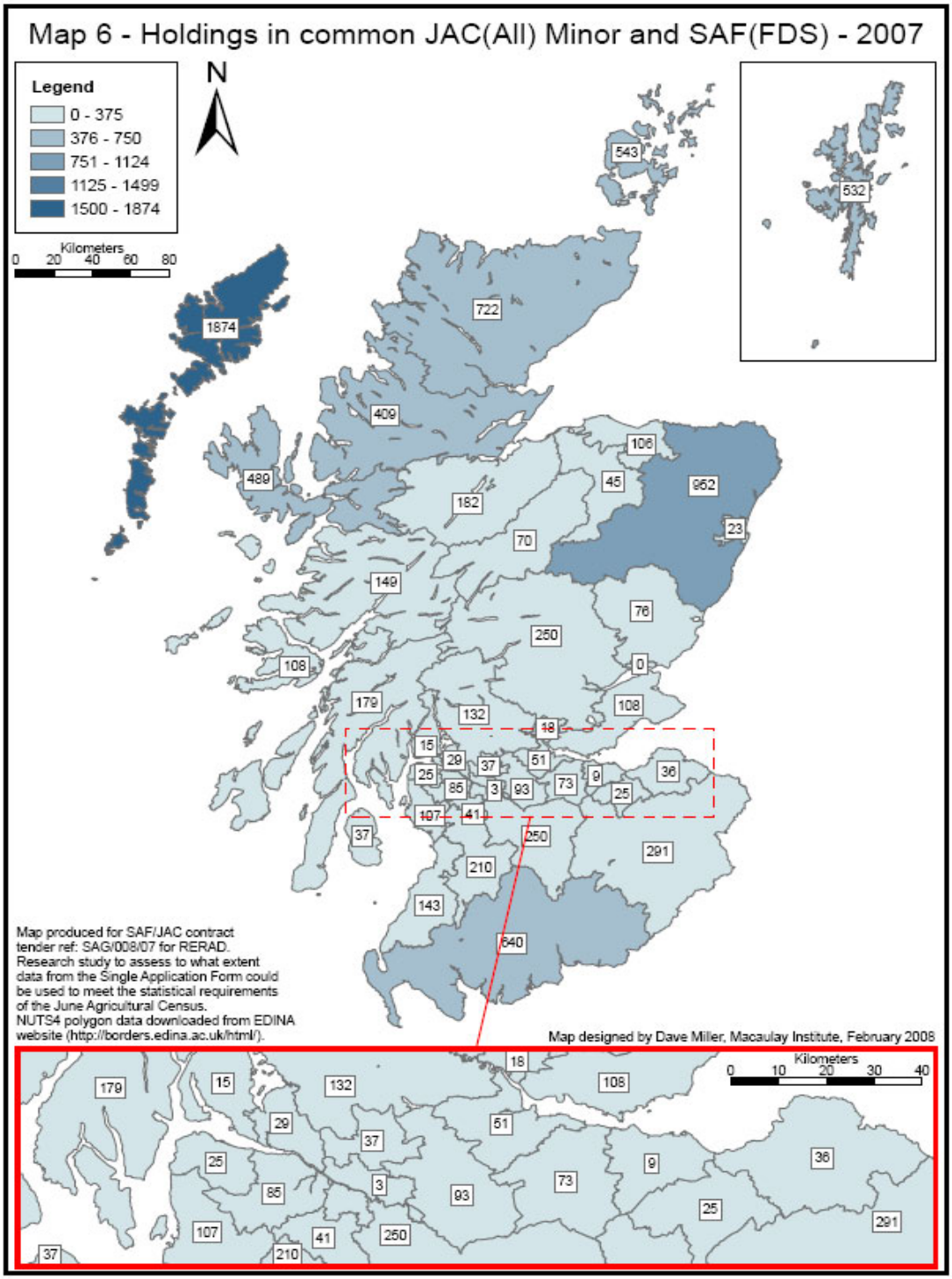
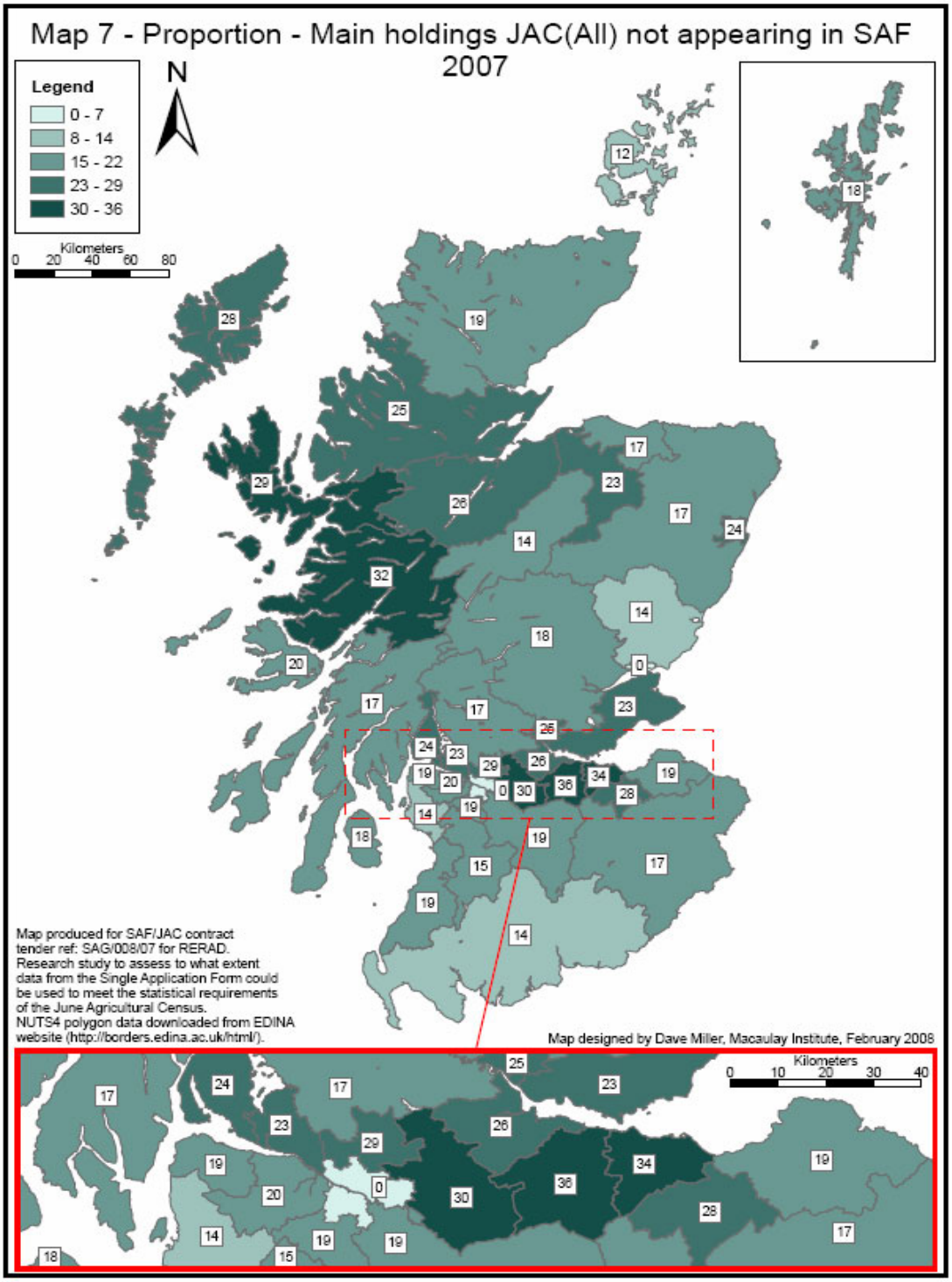
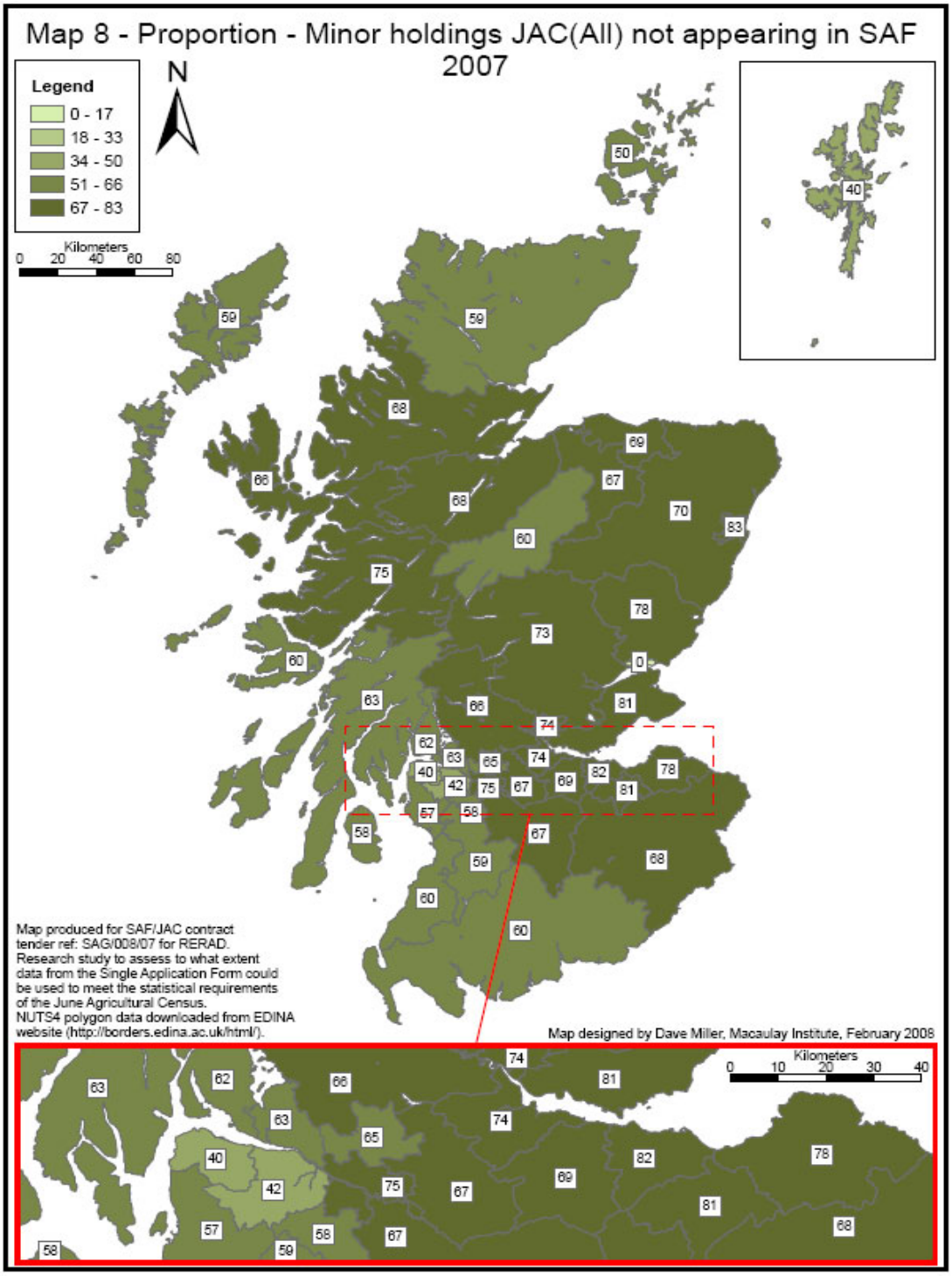
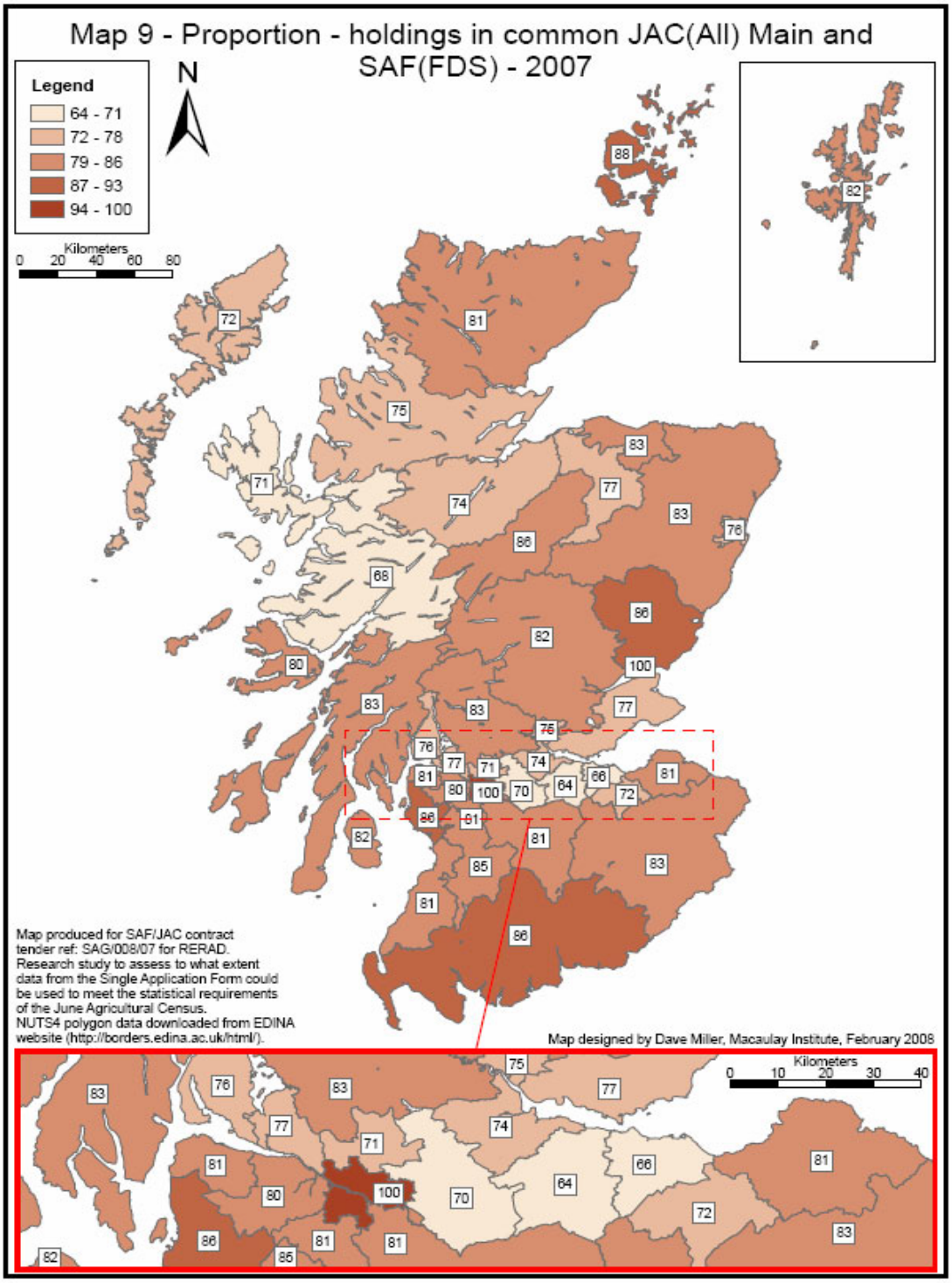
of the June Agricultural Census.
NUTS4 polygon data downloaded from EDINA
website (http://borders.edina.ac.uk/html/).
Map designed by Dave Miller, Macaulay Institute, February 2008
Kilometers
0 10 20 30 40


Map 5 - Holdings in common JAC(All) Main and SAF(FDS) - 2007
Legend
1 - 658
659 - 1315
1316 - 1971
1972 - 2628
2629 - 3285
N
Kilometers
0 20 40 60 80
Map produced for SAF:JAC contract
tender ref: SAG/008/07 for RERAD
Research study to assess to what extent
data from the Single Application Form could
be used to meet the statistical requirements
of the June Agricultural Census.
NUTS4 polygon data downloaded from EDINA
website (http://borders.edina.ac.uk/html/).
Map designed by Dave Miller, Macaulay Institute, February 2008
Kilometers
0 10 20 30 40


Map 6 - Holdings in common JAC(All) Minor and SAF(FDS) - 2007
Legend
0 - 375
376 - 750
751 - 1124
1125 - 1499
1500 - 1874
N
Kilometers
0 20 40 60 80
543
532
1874
722
409
489
106
45
962
182
23
70
149
76
250
108
0
179
132
18
108
15
29
37
51
25
85
3
93
73
9
36
25
107
41
37
250
291
210
143
640
Map produced for SAF/JAC contract tender ref: SAG/008/07 for RERAD. Research study to assess to what extent data from the Single Application Form could be used to meet the statistical requirements of the June Agricultural Census. NUTS4 polygon data downloaded from EDINA website (http://borders.edina.ac.uk/html/).
Map designed by Dave Miller, Macaulay Institute, February 2008
Kilometers
0 10 20 30 40


Map 7 - Proportion - Main holdings JAC(All) not appearing in SAF 2007
Legend
0 - 7
8 - 14
15 - 22
23 - 29
30 - 36
N
Kilometers
0 20 40 60 80
Map produced for SAF/JAC contract tender ref: SAG/008/07 for RERAD. Research study to assess to what extent data from the Single Application Form could be used to meet the statistical requirements of the June Agricultural Census. NUTS4 polygon data downloaded from EDINA website (http://borders.edina.ac.uk/html/).
Map designed by Dave Miller, Macaulay Institute, February 2008
Kilometers
0 10 20 30 40


Map 8 - Proportion - Minor holdings JAC(All) not appearing in SAF 2007
Legend
0 - 17
18 - 33
34 - 50
51 - 66
67 - 83
N
Kilometers
0 20 40 60 80
Map produced for SAF/JAC contract tender ref: SAG/008/07 for RERAD. Research study to assess to what extent data from the Single Application Form could be used to meet the statistical requirements of the June Agricultural Census. NUTS4 polygon data downloaded from EDINA website (http://borders.edina.ac.uk/html/).
Map designed by Dave Miller, Macaulay Institute, February 2008
Kilometers
0 10 20 30 40


Map 9 - Proportion - holdings in common JAC(All) Main and SAF(FDS) - 2007
Legend
64 - 71
72 - 78
79 - 86
87 - 93
94 - 100
N
Kilometers
0 20 40 60 80
Map produced for SAF/JAC contract tender ref: SAG/008/07 for RERAD. Research study to assess to what extent data from the Single Application Form could be used to meet the statistical requirements of the June Agricultural Census. NUTS4 polygon data downloaded from EDINA website (http://borders.edina.ac.uk/html/).
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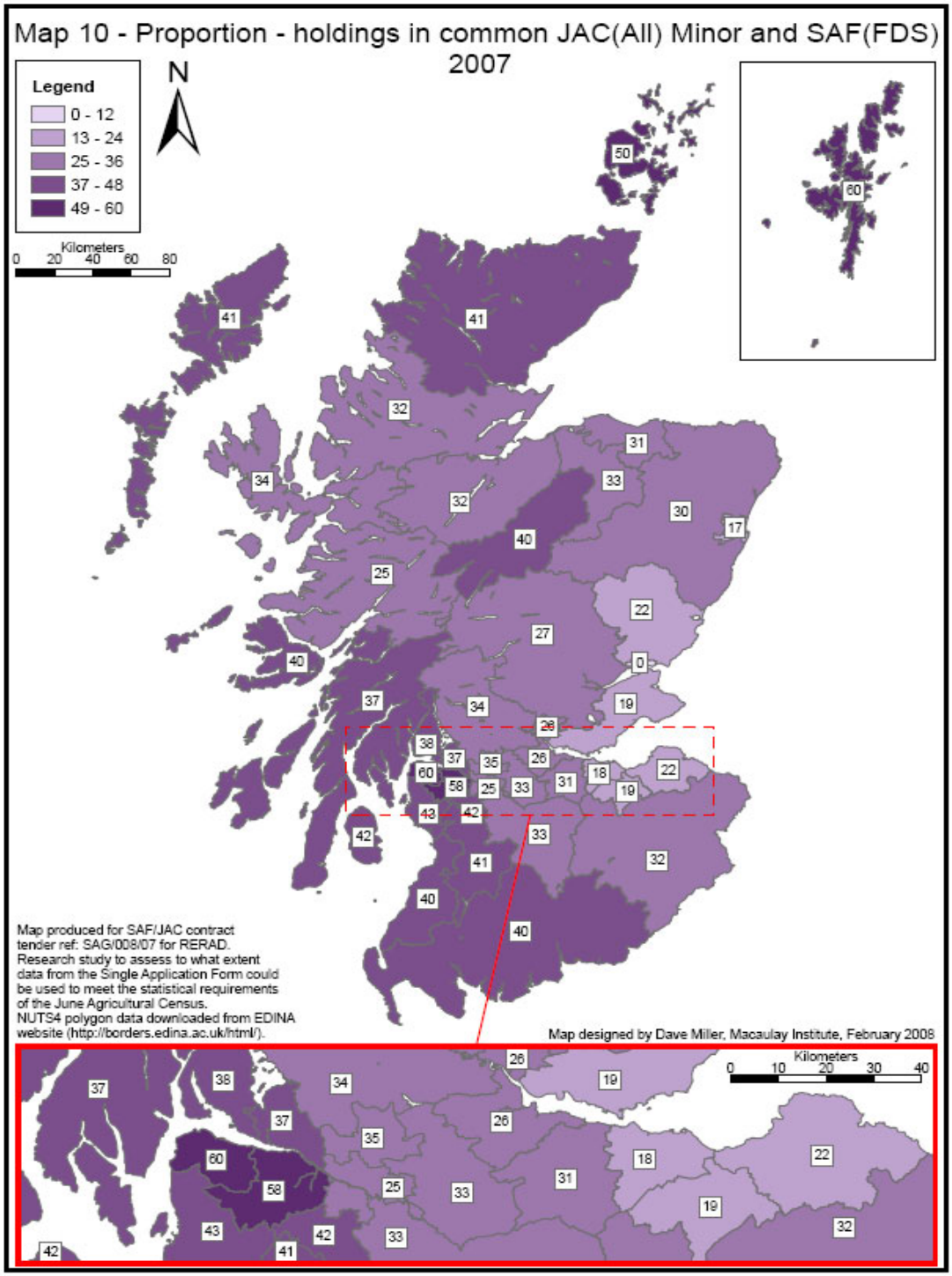

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