



Regionalisation Scenario Builder

Worked Example v1.2

An output from Quantitative Story Telling Phase 2
Land Use Transformations Project

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The James
Hutton
Institute

Regionalisation Scenario Builder

- Calculates payments per business for alternative regionalisation options using 2022 SAF population as a baseline.
- Calculates the change in payments from the 2022 baseline.
- Presents charts of payments and change against farm type, agricultural region and size (area) classes.
- Maps the rates of payment and change in payment per business.
- Saves the payments data for further characterisation – distribution against objectives (in development – April 2024).



Assumptions and fixed elements

- Budgets – fixed as 2022 (£) value, using the total payments to the SAF population as supplied to Hutton from RPID in May 2023.
- Regions
 - Uses the existing three BPS regions, option to split Region 1 is available using a grass land arable split (with TGRS in arable area).
 - No change in the mix of regions per business.
 - Uses the 2022 LFASS region areas per business.
- Livestock
 - Types and numbers used for VCS in 2022 are fixed (but could be changed if alternatives were seen as desirable).



Mechanisms available in designing scenarios

- **Number of regions**
 - Up to four future regions, any combination of BPS regions
- **Area per region**
 - Determined by the assigned BPS regions
- **Money per region**
 - Constrained to stay within the maximum budget but otherwise free to be assigned between regions to best meet scenario goals
 - LFASS and VCS budgets may be converted to fully area-based payments (flattened)
- **LFASS** – a scheme specifically to address issues of disadvantage.
- **Voluntary Coupled Support** – schemes where payments are linked to production systems – typically particular types of livestock seen as foundational for wider systems (e.g. suckler cattle).
- **Capping** – sets a maximum payment per region, for all regions or per scheme (e.g. VCS), typically used to limit payments for the very largest businesses.
- **Frontloading** – a progressive payment that favours smaller businesses. Pays more (a multiplier of the rate for the region) for the first x hectares of a business (which may be a mix of region types). Can also apply to the first x animals in a VCS scheme.



Interface – Controls 1

Scenario Builder

1. Tabs for Change & Payment Distribution.

Controls Change vs Baseline Total Values

2. Summary of budget totals (check all budgets spent)

3. Region definitions – which BPS regions are in each future region (R1- R4). Baseline three regions. Note option to split BPS region 1

4. Area and Rate summaries

5. Budget allocated – use slider to change.

6. Front loading area in ha (disabled if zero)

7. Front loading multiplier for the payment rate

8. Maximum Payment (£) set for each future region (Capping)

9. Max payment and Front loading applied across All regions

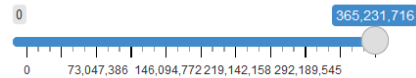
R1

BPS Region(s)

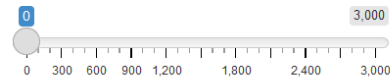
- ☒ Region1 - Arable
- ☒ Region1 - Grassland
- ☐ Region 2
- ☐ Region 3

Area:
1,662,960 ha (220 £/ha)

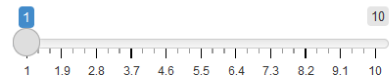
Budget:



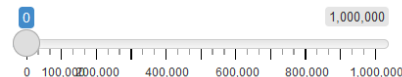
Front Loading Area R1



Front Loading Multiplier R1



Max Pay (Cap) R1:



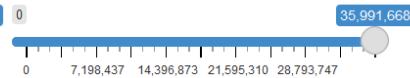
R2

BPS Region(s)

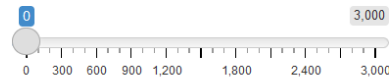
- ☐ Region1 - Arable
- ☐ Region1 - Grassland
- ☒ Region 2
- ☐ Region 3

Area:
771,809 ha (47 £/ha)

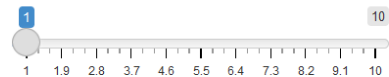
Budget:



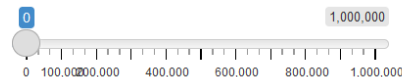
Front Loading Area R2



Front Loading Multiplier R2



Max Pay (Cap) R2:



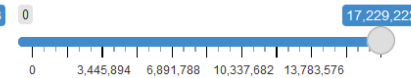
R3

BPS Region(s)

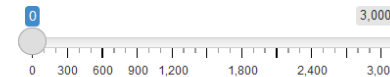
- ☐ Region1 - Arable
- ☐ Region1 - Grassland
- ☐ Region 2
- ☒ Region 3

Area:
1,263,464 ha (14 £/ha)

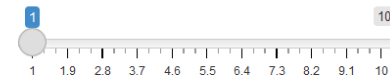
Budget:



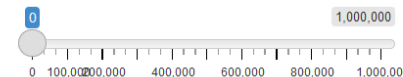
Front Loading Area R3



Front Loading Multiplier R3



Max Pay (Cap) R3:



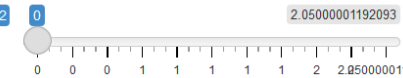
R4

BPS Region(s)

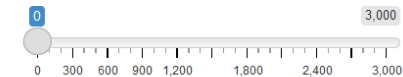
- ☐ Region1 - Arable
- ☐ Region1 - Grassland
- ☐ Region 2
- ☐ Region 3

Area:
NA

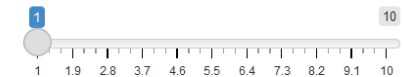
Budget:



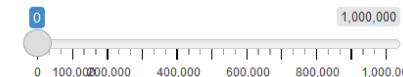
Front Loading Area R4



Front Loading Multiplier R4



Max Pay (Cap) R4:



Budget Totals:

BPS/Greening Budget:

Scenario: £418,452,606 (79.45 %)
Baseline: £418,452,607 (79.45 %)

LFASS Budget:

Scenario: £61,489,435 (11.67 %)
Baseline: £61,489,435 (11.67 %)

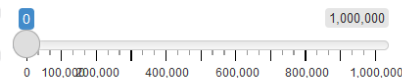
VCS Budget:

Scenario: £46,750,440 (8.88 %)
Baseline: £46,750,440 (8.88 %)

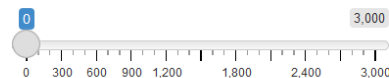
Total Budget:

Scenario: £526,692,481 (100 %)
Baseline: £526,692,483

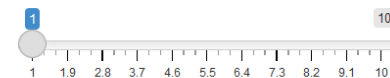
Max Pay (Cap) All BPS/Greening:



Front Loading Area BPS All



Front Loading Multiplier BPS All



Interface – Controls 2

10. Other Scheme controls

12. Alternative ways to distribute the money.
Flatten budget over:
LFASS area
Combined BPS 2&3 area
or All BPS area combined.
Allows the system to change Basis without moving funds between schemes.

13. Area or Animal Count and payment rate per ha or per animal.

14. Budget per scheme.

15. Front loading options –
For LFASS an area or VCS a count of animals. Multiplier as for other schemes.

Note front loading using baseline of LFASS not yet available (so greyed out)

16. Maximum payments (£)
– Capping value per scheme.

11. Basis – how the funds are allocated.
Baseline either using LFASS area and other adjustments (as of 2022) or for VCS using the animal types and numbers for the 2022 schemes.

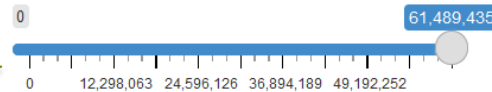
LFASS

Basis:

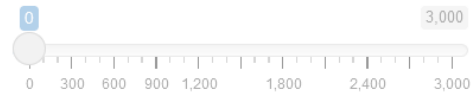
- ☒ Baseline
- ☐ Flatten to LFASS
- ☐ Flatten to BPS 2/3
- ☐ Flatten to all BPS

Area:
2,824,401 ha (22 £/ha)

Budget:



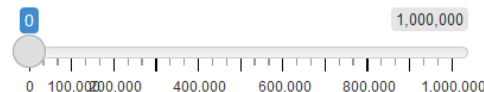
Front Loading Area LFASS



Front Loading Multiplier LFASS



Max Pay (Cap):



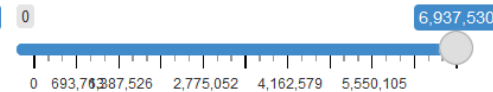
Sheep VCS

Basis:

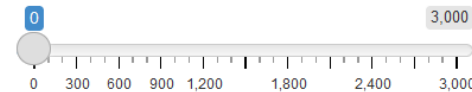
- ☒ Baseline (animals)
- ☐ Flatten to LFASS
- ☐ Flatten to BPS 2/3
- ☐ Flatten to all BPS

Animals/Area:
113,266 animals (61 £/animals)

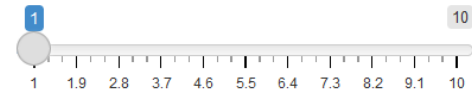
Budget:



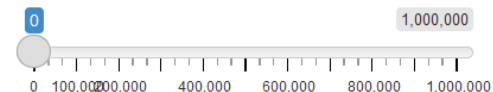
Front Loading VCS Sheep



Front Loading Multiplier VCS Sheep



Max Pay (Cap):



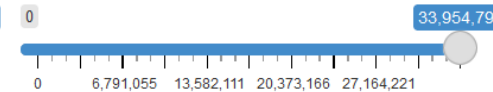
Beef Mainland VCS

Basis:

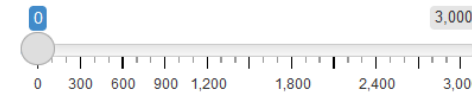
- ☒ Baseline (animals)
- ☐ Flatten to LFASS
- ☐ Flatten to BPS 2/3
- ☐ Flatten to all BPS

Animals/Area:
334,794 animals (101 £/animals)

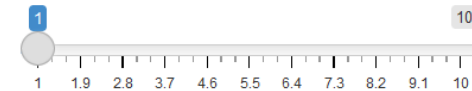
Budget:



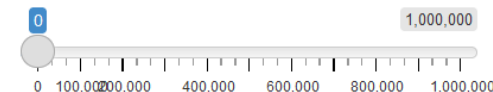
Front Loading VCS Beef Main



Front Loading Multiplier VCS Beef Main



Max Pay (Cap):



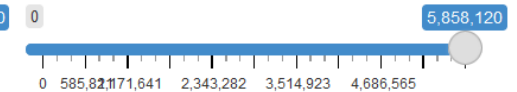
Beef Island VCS

Basis:

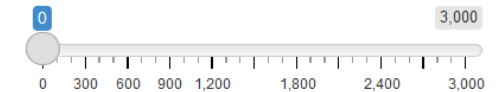
- ☒ Baseline (animals)
- ☐ Flatten to LFASS
- ☐ Flatten to BPS 2/3
- ☐ Flatten to all BPS

Animals/Area:
40,546 animals (144 £/animals)

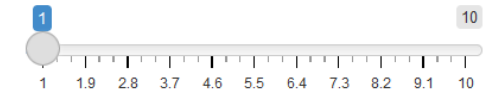
Budget:



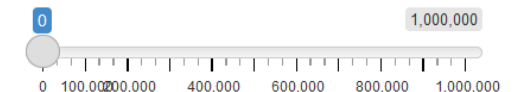
Front Loading VCS Beef Isle



Front Loading Multiplier VCS Beef Isle



Max Pay (Cap):



Worked Example – 2 Region no LFASS

- **2 Region no LFASS** is a simplification of the payment system.
 - Useful example as shows all the policy levers in the Scenario Builder.
- Based on EARS 2 region model (Scenario 5) with combined Region 2&3 and Sheep Upland Support scheme folded into region budget*
- Rationale for dropping LFASS:
 - An unclear rationale and limited effectiveness as a Pillar 2 measure
 - Historic basis outdated and unfair
 - LFASS IT system at end of life - not desirable to replicate functionality
 - Region definition has been questioned but replacements have offered limited gains in directing funds as desired (see ANC)
- But, LFASS seen by stakeholders as having a key role in marginal areas and for cattle systems, so:
 - More rational to use LFASS budget via other mechanisms to be explicit and transparent in what it delivers:
 - Income top up payment for rough grazing areas (combined R2 & R3 in existing system;
 - Top up VCS payments for systems seen as in need of added support (currently those use in VCS – beef mainland and island*).

*A specific sheep VCS scheme was not (re)considered here but could be added.



Setting up the scenario steps 1-5

- The next three slides show how to set up scenarios – step by step.
- They show the types of changes that can be made and the logic of what they are intended to achieve.
- For each step there are two side by side panes - the first shows how the interface looks Before the step and the second After the inputs have been made.
- The nature of the change is shown in the call out box.
- In some cases, two changes are made in a single panel these are shown as two call out boxes.

Before
After

R3

BPS Region(s)

☐ Region1 - Arable

☐ Region1 - Grassland

☐ Region 2

☒ Region 3

Area:
1,263,464 ha (14 £/ha)

Budget:

0 17,229,222

0 3,445,894 6,891,788 10,337,682 13,783,576

R3

BPS Region(s)

☐ Region1 - Arable

☐ Region1 - Grassland

☐ Region 2

☐ Region 3

Area:
NA

Budget:

0 17,229,224.05

0 3,445,894 6,891,788 10,337,682 13,783,576

1. Untick Region 3 – removes it from future region R3

2. Reduce Region 3 budget to zero

R2

BPS Region(s)

☐ Region1 - Arable

☐ Region1 - Grassland

☒ Region 2

☐ Region 3

Area:
771,809 ha (47 £/ha)

Budget:

0 35,991,668

0 10,644,330 21,288,661 31,932,991 42,577,321

R2

BPS Region(s)

☐ Region1 - Arable

☐ Region1 - Grassland

☒ Region 2

☒ Region 3

Area:
2,035,272 ha (26 £/ha)

Budget:

0 53,220,892.05

0 10,644,330 21,288,661 31,932,991 42,577,321

3. Tick Region 3 – adds it to future region R2 (merges BPS 2 & 3)

4. Add Region 3 funds to future region 2 (slide to maximum)

Sheep VCS

Basis:

☒ Baseline (animals)

☐ Flatten to LFASS

☐ Flatten to BPS 2/3

☐ Flatten to all BPS

Animals/Area:
113,266 animals (61 £/animals)

Budget:

0 6,937,530

0 693,763,887,526 2,775,052 4,162,577 5,550,103 6,937,530

Sheep VCS

Basis:

☒ Baseline (animals)

☐ Flatten to LFASS

☐ Flatten to BPS 2/3

☐ Flatten to all BPS

Animals/Area:
113,266 animals (0 £/animals)

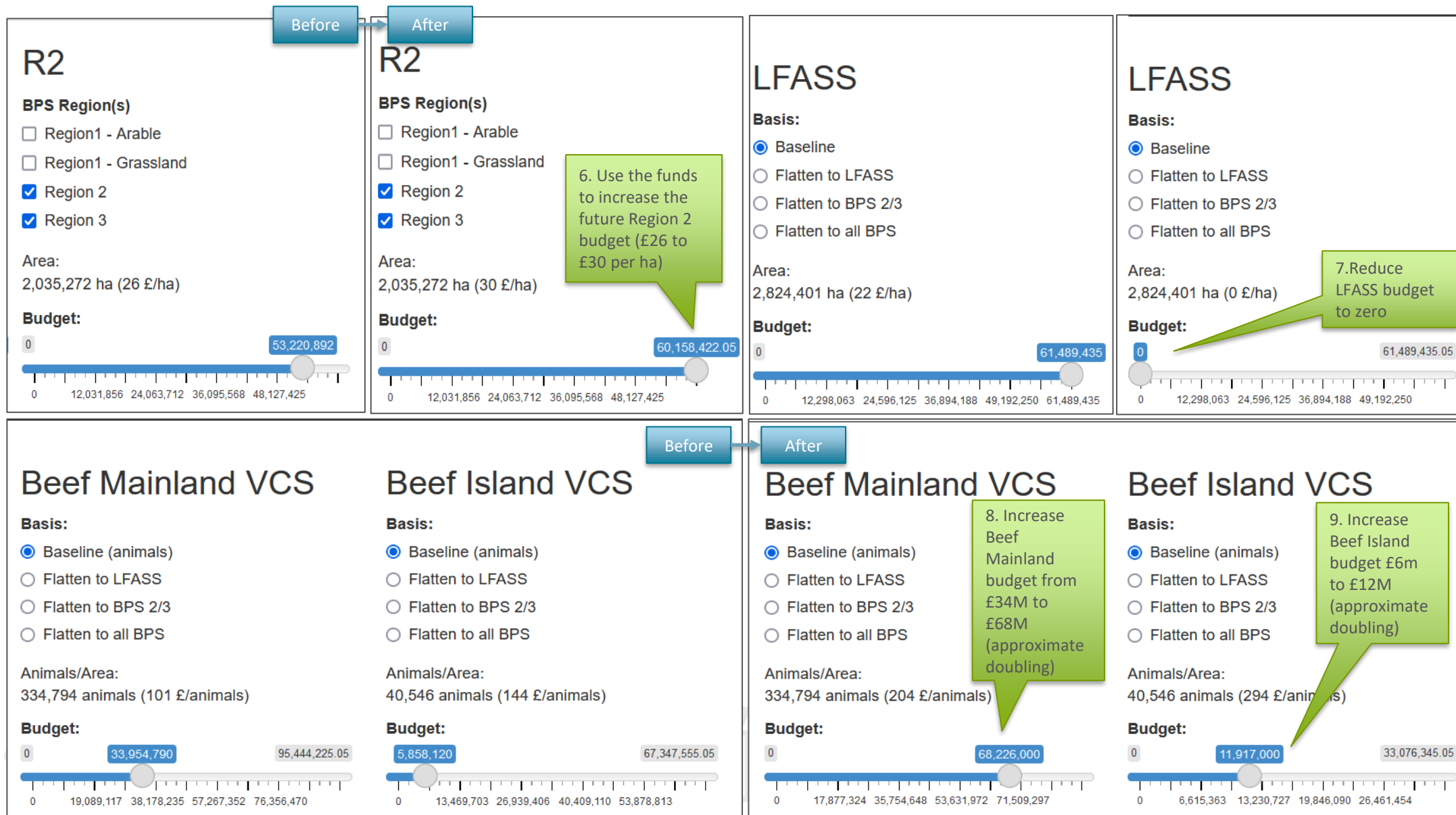
Budget:

0 6,937,530.05000001

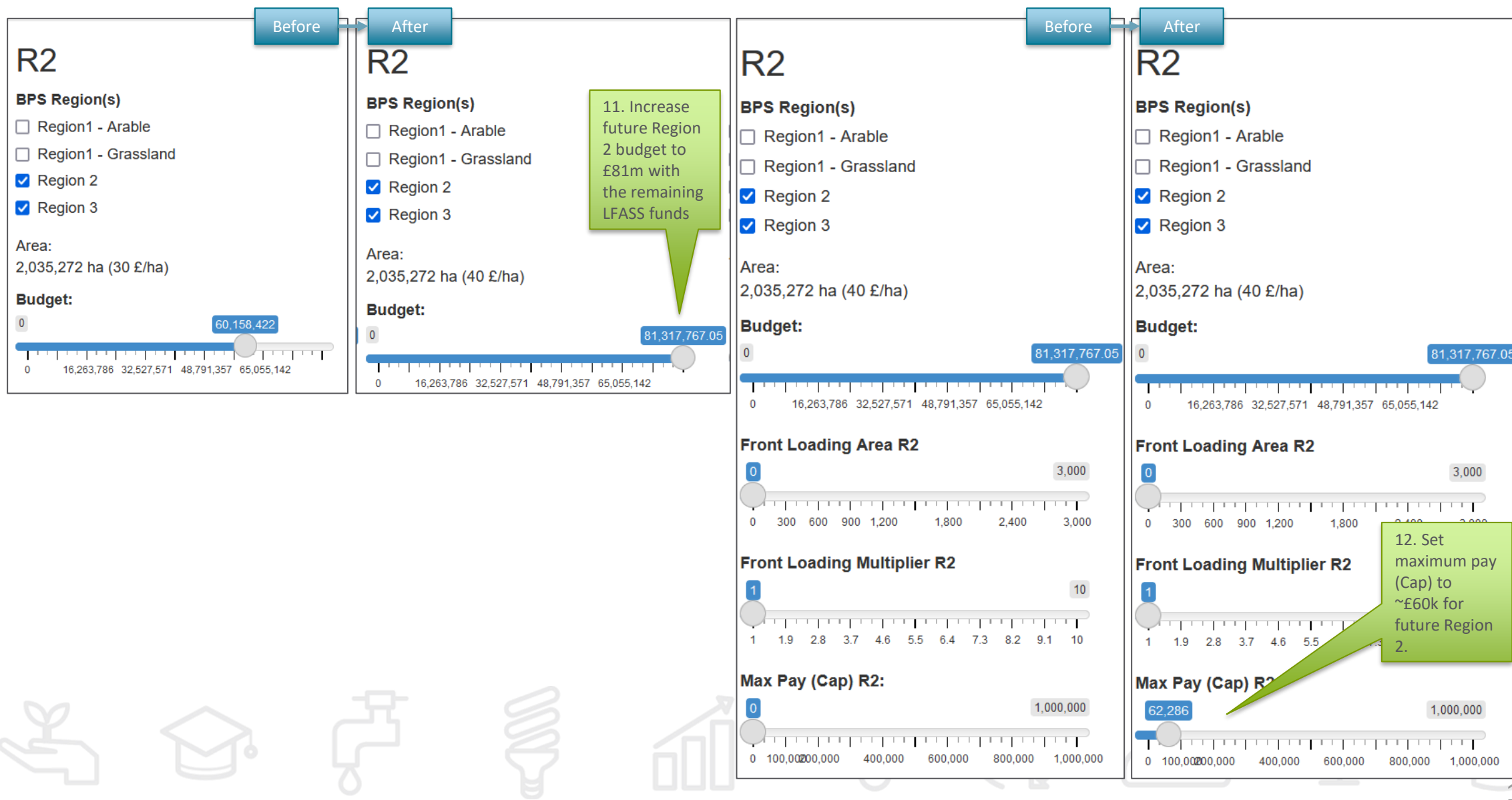
0 693,763,887,526 2,775,052 4,162,577 5,550,103

5. Reduce Sheep VCS budget to zero. As per EARS Scenario 5

Setting up the scenario steps 6-9



Setting up the scenario steps 10-12



Outputs

- Use the outputs for the **2 Regions no LFASS** scenario
- On the **Controls tab** – summary of baseline and scenario budgets, region areas, animal numbers and payment rates
 - Used for interpretation of outcomes and checks like using all budget. May also help with respecting other limits like maximum percentage for VCS.
- **Controls tab** – still in development but aim not to overload.
- **Change and Total Values tabs**
 - Charts by farm types (Combined), agricultural region and business size.
 - Change in payments and distribution of payments.
 - Can be generated at each step to give feedback in designing the scenario.

Budget Totals:

BPS/Greening Budget:

Scenario: £446,549,483 (84.78 %)

Baseline: £418,452,607 (79.45 %)

LFASS Budget:

Scenario: £0 (0 %)

Baseline: £61,489,435 (11.67 %)

VCS Budget:

Scenario: £80,143,000 (15.22 %)

Baseline: £46,750,440 (8.88 %)

Total Budget:

Scenario: £526,692,483 (100 %)

Baseline: £526,692,483



Outputs – change vs baseline – totals

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central
Fife Ayrshire Clyde Valley Lothian
Dumfries & Galloway Scottish Borders

Farm Types

Sp granivores Var granivores comb Sp dairy
Sp Hort and Perm Crop Gen Field Crop Sp cereals
Mixed Crops - Livestock Spec cattle rear and fatten
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & Goats Non Classified

SizeClass

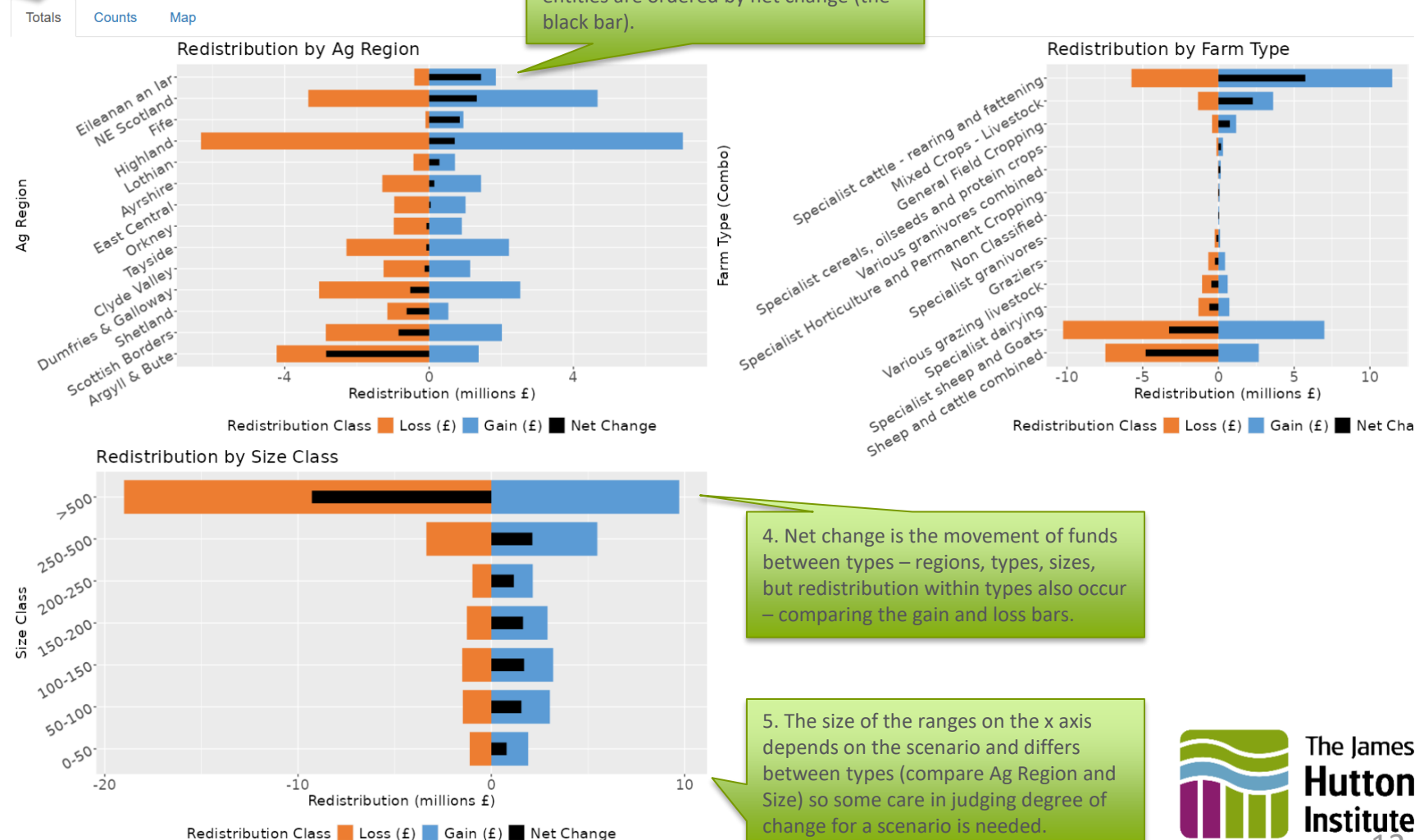
<50 50-100 100-150 150-200 200-250 250-500
>500

Draw Graph

1. Note – graphs only drawn after Draw Graph button pressed, and needs to be used each time to update the charts after changes.

2. For Ag Region, Farm Type and size the charts show gain, loss and net change.

3. For Ag Region and Farm Type the entities are ordered by net change (the black bar).



4. Net change is the movement of funds between types – regions, types, sizes, but redistribution within types also occur – comparing the gain and loss bars.

5. The size of the ranges on the x axis depends on the scenario and differs between types (compare Ag Region and Size) so some care in judging degree of change for a scenario is needed.

Outputs – change vs baseline – counts

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central
Fife Ayrshire Clyde Valley Lothian
Dumfries & Galloway Scottish Borders

Farm Types

Sp granivores Var granivores comb Sp dairy
Sp Hort and Perm Crop Gen Field Crop Sp cereals
Mixed Crops - Livestock Spec cattle rear and fatten
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & Goats Non Classified

SizeClass

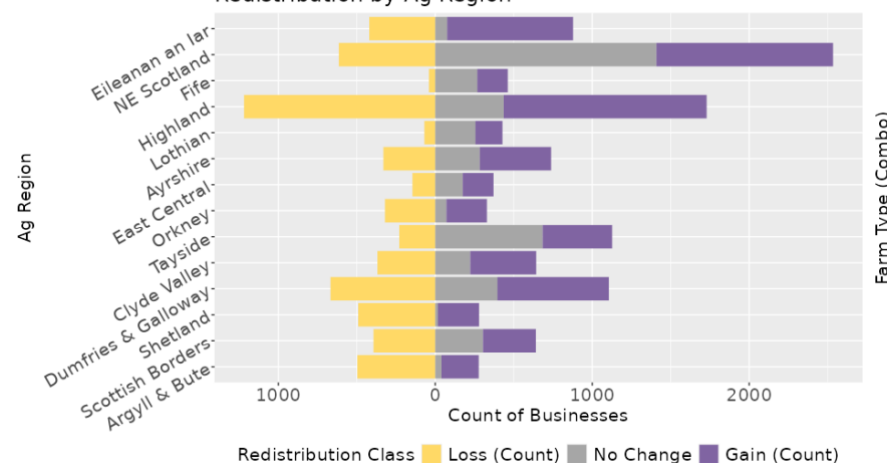
<50 50-100 100-150 150-200 200-250 250-500
>500

Draw Graph

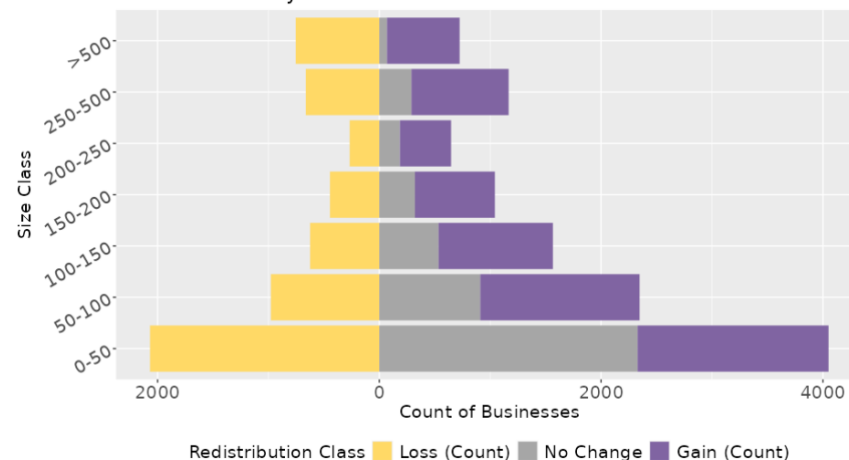
The counts charts show the numbers of businesses – loss, gain and no change

Totals Counts Map

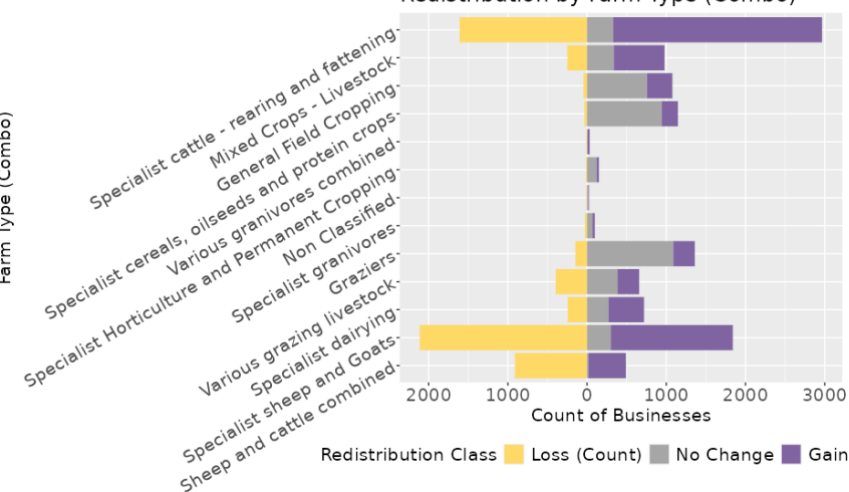
Redistribution by Ag Region



Redistribution by Size Class



Redistribution by Farm Type (Combo)



Outputs – change vs baseline – maps

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central
Fife Ayrshire Clyde Valley Lothian
Dumfries & Galloway Scottish Borders

Farm Types

Sp granivores Var granivores comb Sp dairy
Sp Hort and Perm Crop Gen Field Crop Sp cereals
Mixed Crops - Livestock Spec cattle rear and fatten
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & Goats Non Classified

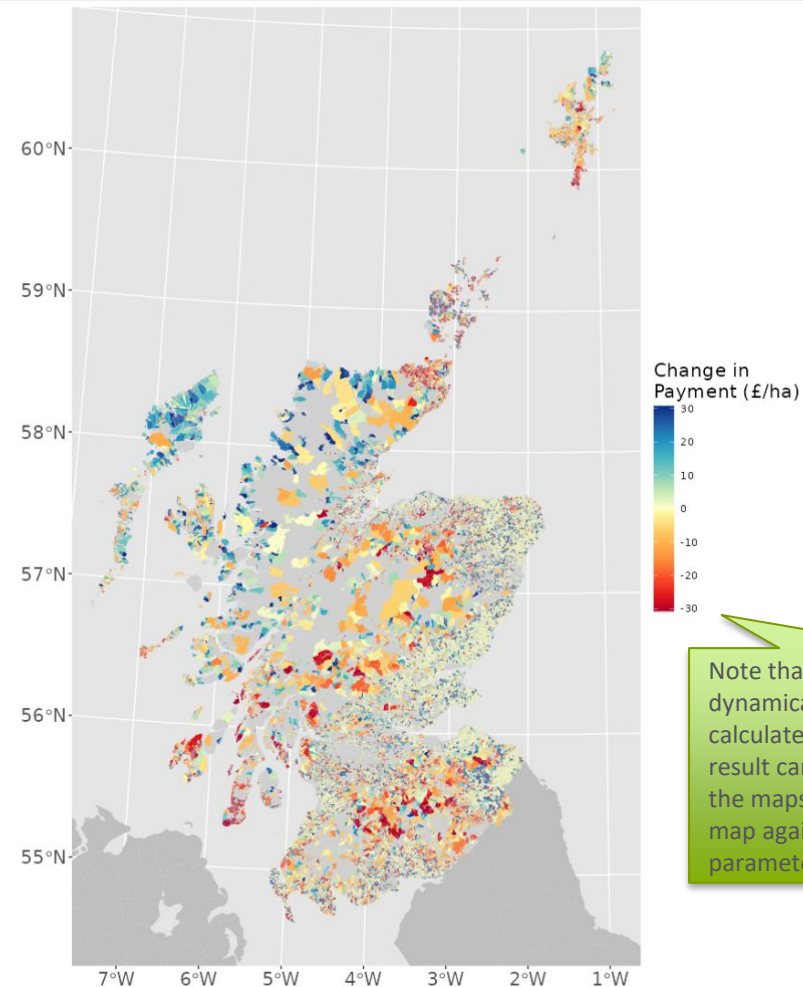
SizeClass

<50 50-100 100-150 150-200 200-250 250-500
>500

Draw Map

The maps tab presents per business maps of overall rates of change in payment per ha.

Totals Counts Map



Note drawing all the businesses (i.e. a national map as opposite) uses field data for all fields in SAF (n=468,912) so takes up to 2 minutes – you should see a blue daisy wheel as the calculation progresses.

A field level analysis is needed as there are multi-user fields (n=5,986) – i.e. where multiple entities use part of a field each with their own rates of payment that are resolved to a field-based average.

Note that the upper and lower value limits are dynamically generated. This means they are calculated *each time* a scenario is run. As a result care should be taken when interpreting the maps and especially when comparing one map against another using different sets of parameters.

Outputs – total values – totals

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central
Fife Ayrshire Clyde Valley Lothian
Dumfries & Galloway Scottish Borders

Farm Types

Sp granivores Var granivores comb Sp dairy
Sp Hort and Perm Crop Gen Field Crop Sp cereals
Mixed Crops - Livestock Spec cattle rear and fatten
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & Goats Non Classified

Size Class

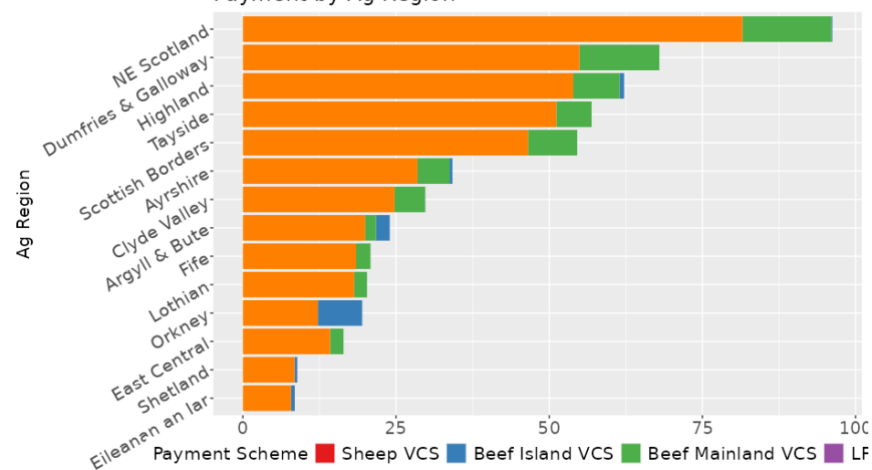
<50 50-100 100-150 150-200 200-250 250-500
>500

Draw Graph

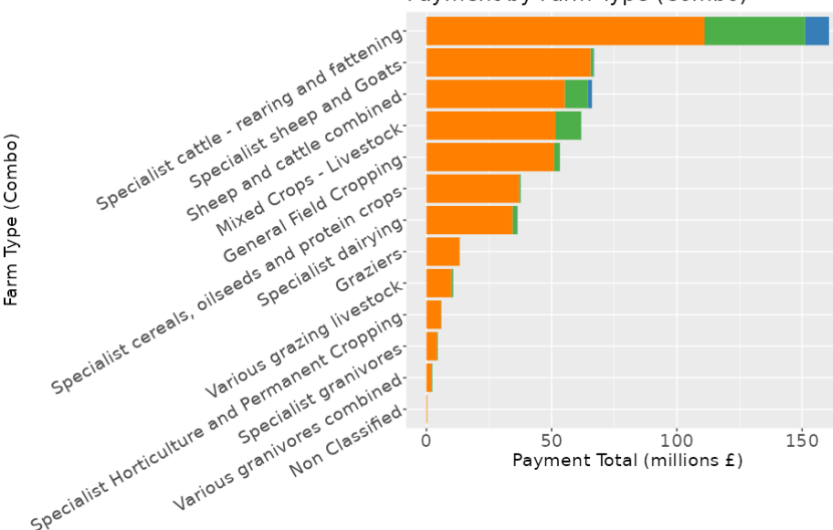
The totals tab presents the spend per scheme broken down by Ag Region, Farm Type and Size.

Totals Map

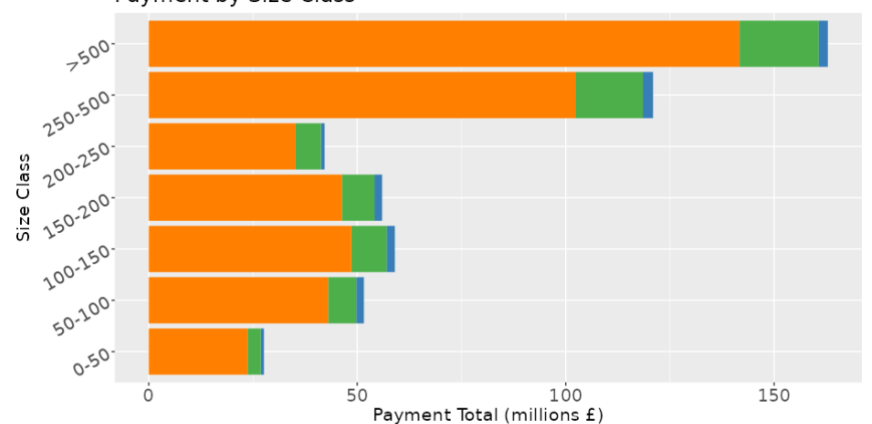
Payment by Ag Region



Payment by Farm Type (Combo)



Payment by Size Class



Payment Scheme Sheep VCS Beef Island VCS Beef Mainland VCS LF BPS/Greening

Outputs – total values – map

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland	Orkney	Eileanan an Iar	Highland
NE Scotland	Argyll & Bute	Tayside	East Central
Fife	Ayrshire	Clyde Valley	Lothian
Dumfries & Galloway	Scottish Borders		

Farm Types

Sp granivores	Var granivores comb	Sp dairy
Sp Hort and Perm Crop	Gen Field Crop	Sp cereals
Mixed Crops - Livestock	Spec cattle rear and fatten	
Var graz livestock	Sheep & cattle comb	Graziers
Sp sheep & Goats	Non Classified	

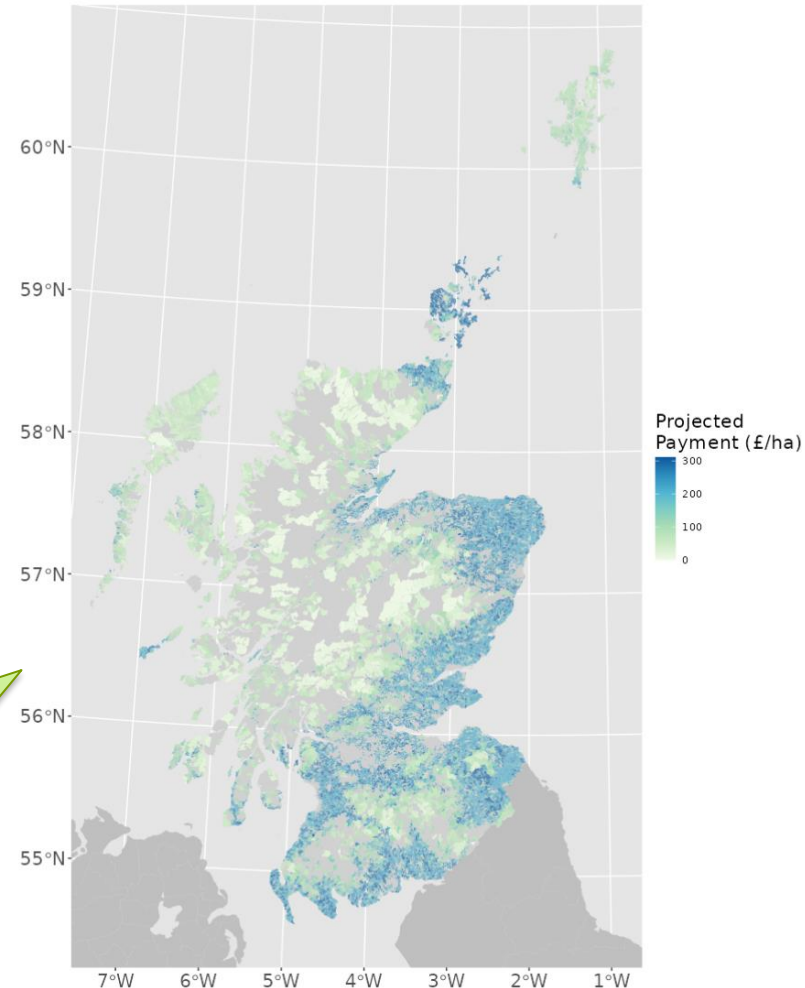
SizeClass

<50	50-100	100-150	150-200	200-250	250-500
>500					

Draw Map

The map tab presents the payment rate per ha for each land parcel

Totals Map



Options to present scheme specific maps could be added. The map shows the total payments (area based and animal based) as rates per ha over the whole business.

This shows the support funding available to the business NOT where it is generated. For example, a business with a mix of future R1 and R2 land will have higher rates on the upland parts compared to a R2 only business and lower rates on the lowland parts compared to a R1 only business.

Extra options – regional focus

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland **Argyll & Bute** Tayside East Central
Fife Ayrshire Clyde Valley Lothian
Dumfries & Galloway Scottish Borders

Farm Types

Sp granivores Var granivores comb Sp dairy
Sp Hort and Perm Crop Gen Field Crop Sp cereals
Mixed Crops - Livestock Spec cattle rear and fatten
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & Goats Non Classified

SizeClass

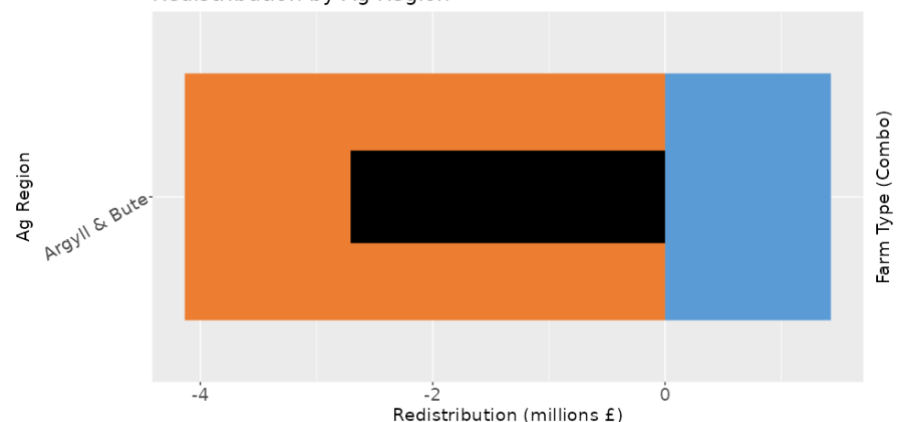
<50 50-100 100-150 150-200 200-250 250-500
>500

Draw Graph

A regional focus can be taken for the change versus baseline by **unselecting** region(s) (by default all Ag Regions are drawn). The charts are redrawn showing just the changes by farm type and size class for the region(s) that remain selected. The example here uses the **Argyll and Bute** Ag Region (the region with the biggest net loss). The charts highlight that most of the loss is occurring in the largest businesses with significant numbers of sheep.

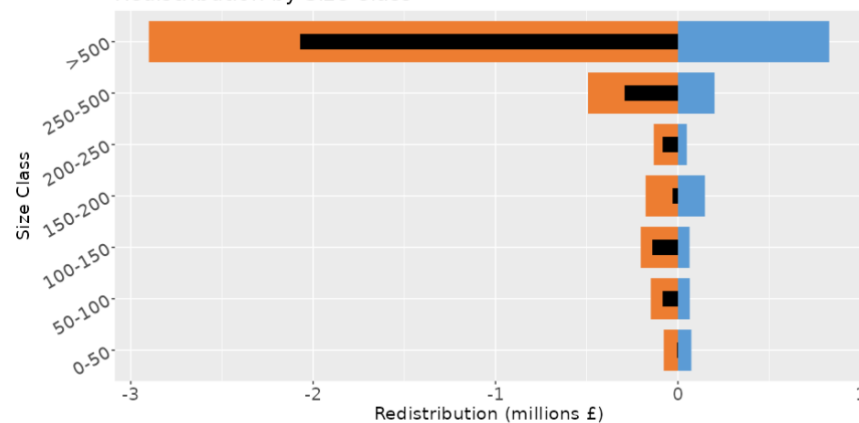
Totals Counts Map

Redistribution by Ag Region



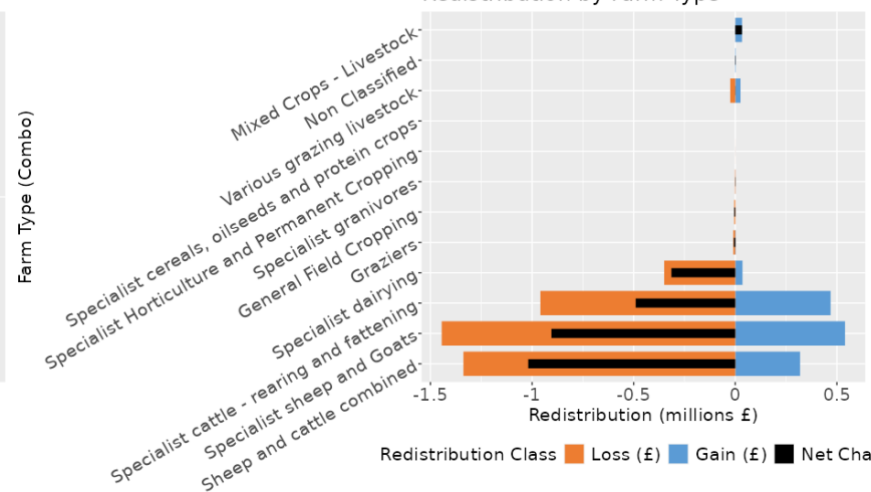
Redistribution Class Loss (£) Gain (£) Net Change

Redistribution by Size Class

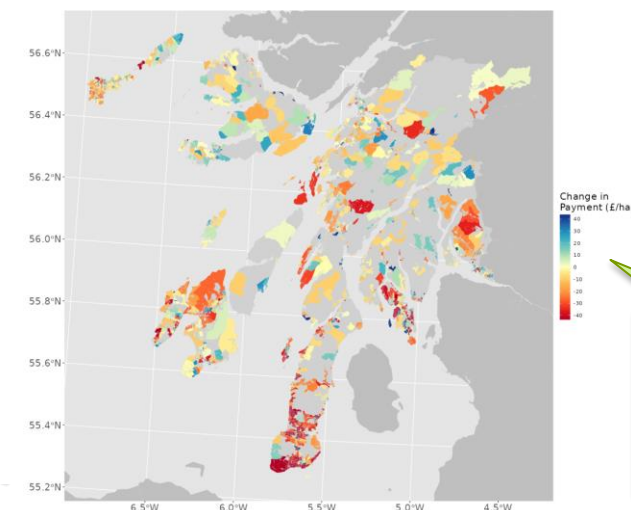


Redistribution Class Loss (£) Gain (£) Net Change

Redistribution by Farm Type



Redistribution Class Loss (£) Gain (£) Net Change



Regional analysis also enhanced by region maps – see p21

Extra options – farm type focus

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central
Fife Ayrshire Clyde Valley Lothian
Dumfries & Galloway Scottish Borders

Farm Types

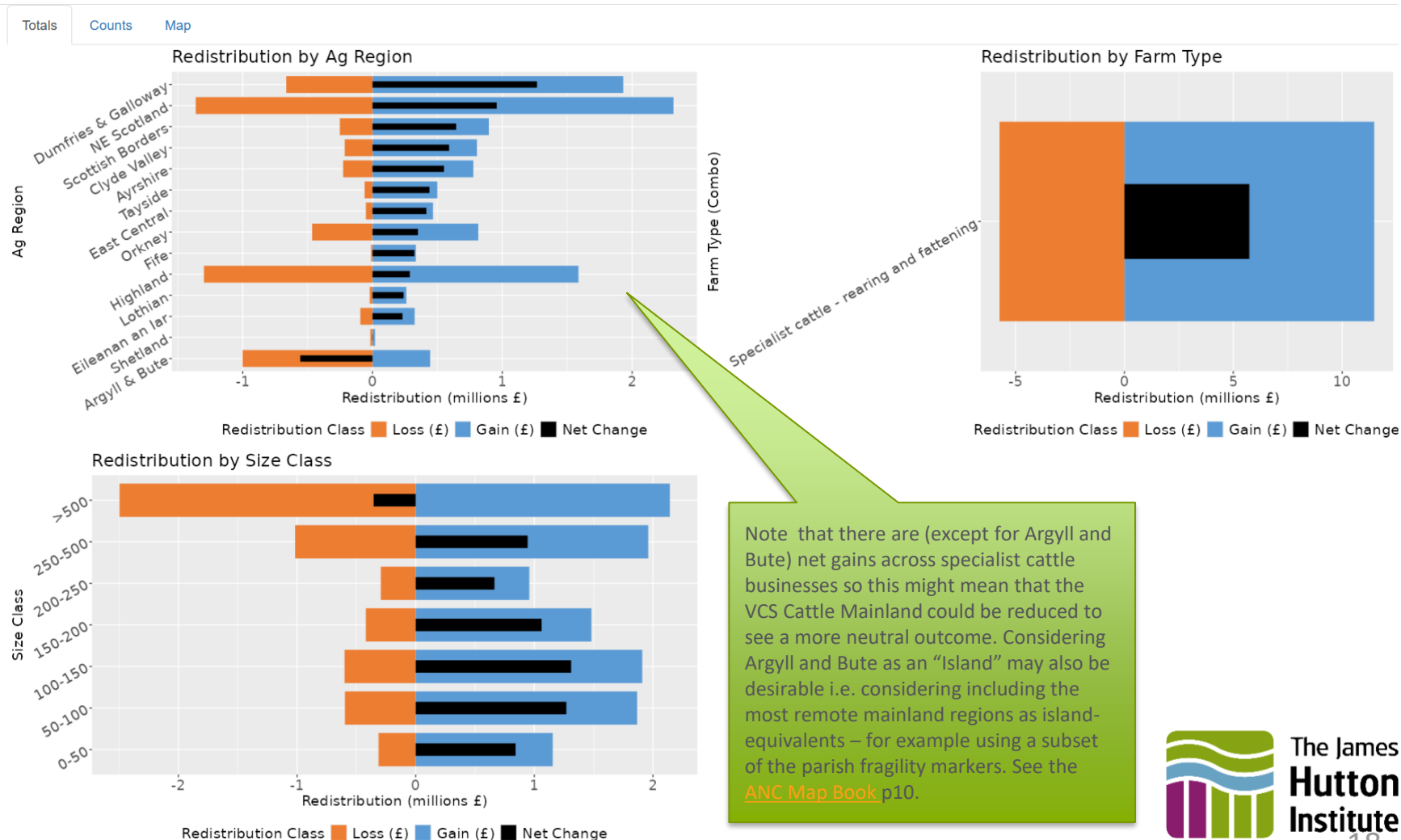
Sp granivores Var granivores comb Sp dairy
Sp hort and perm crop Gen field crop Sp cereals
Mixed Crops - Livestock **Spec cattle rear and fatten**
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & goats Non Classified

SizeClass

<50 50-100 100-150 150-200 200-250 250-500
>500

Draw Graph

A Farm Type focus can be taken for the change versus baseline by **unselecting** Farm Type(s) (by default all Farm Types are drawn). The example here uses Specialist Cattle and shows how the overall change for the type varies across regions and size classes. This is particularly effective when there are contrasting effects of a scenario – in this example highlighting Argyll and Bute.



Extra options – size class focus

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland

NE Scotland Argyll & Bute Tayside East Central

Fife Ayrshire Clyde Valley Lothian

Dumfries & Galloway Scottish Borders

Farm Types

Sp granivores Var granivores comb Sp dairy

Sp Hort and Perm Crop Gen Field Crop Sp cereals

Mixed Crops - Livestock Spec cattle rear and fatten

Var graz livestock Sheep & cattle comb Graziers

Sp sheep & Goats Non Classified

SizeClass

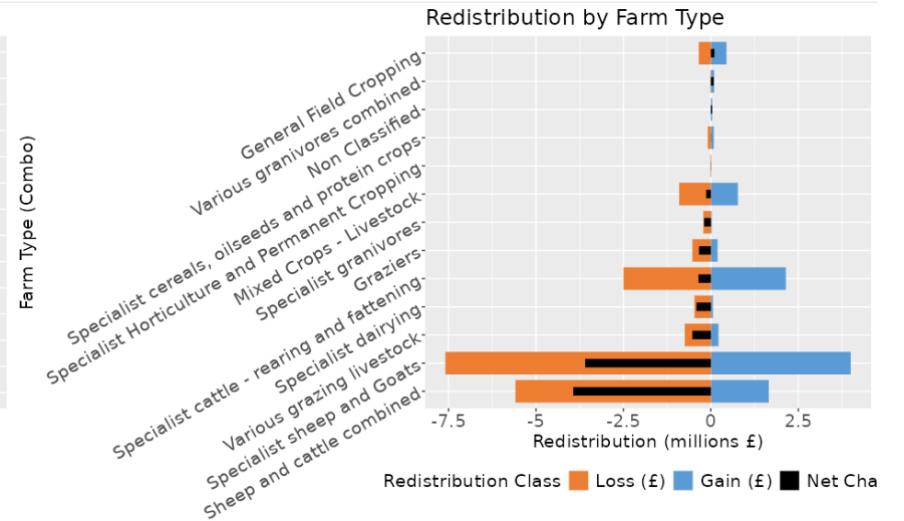
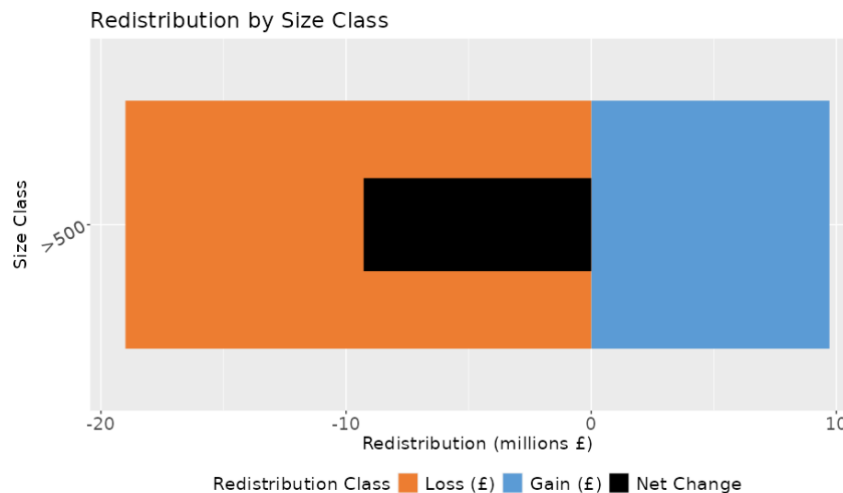
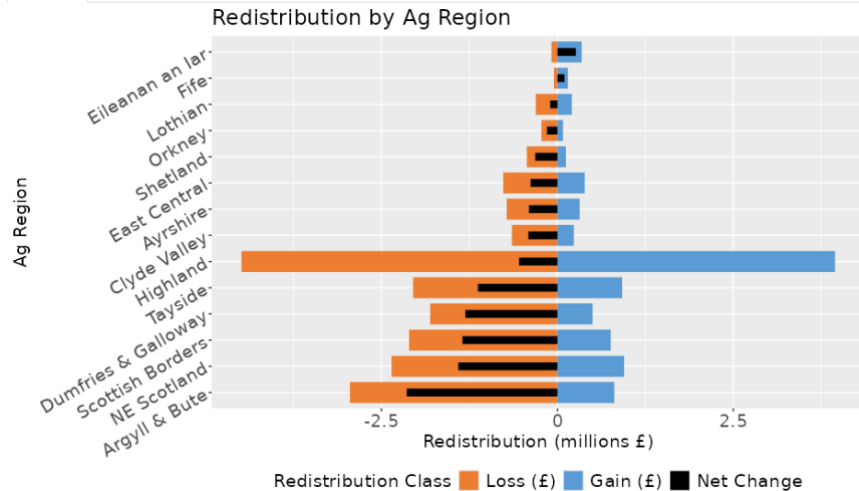
<50 50-100 100-150 150-200 200-250 250-500

>500

Draw Graph

A size class focus can be taken for the change versus baseline by **unselecting** size classes (by default all Size Classes are drawn). The example use here is the largest class (>500 ha)

Totals Counts Map



Extra options – more complex combinations

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central
Fife Ayrshire Clyde Valley Lothian
Dumfries & Galloway Scottish Borders

Farm Types

Sp granivores Var granivores comb Sp dairy
Sp hort and perm crop Gen field crop Sp cereals
Mixed crops - livestock Spec cattle rear and fatten
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & goats Non Classified

Size Class

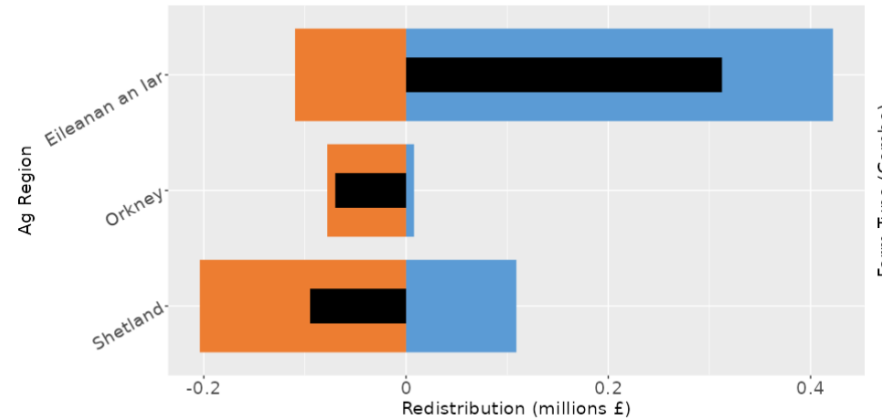
<50 50-100 100-150 150-200 200-250 250-500
>500

Draw Graph

For more specific policy questions, the Ag Regions, Farm Types and Size Classes can be combined to generate very specific combinations e.g. to be able to respond to stakeholder questions.

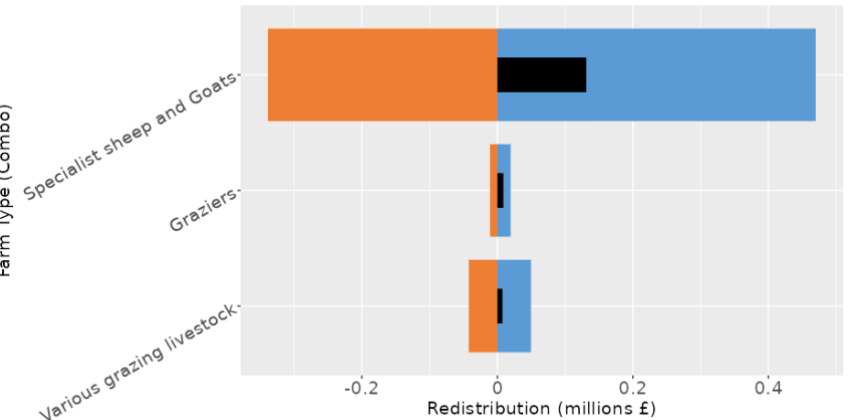
Totals Counts Map

Redistribution by Ag Region



Redistribution Class Loss (£) Gain (£) Net Change

Redistribution by Farm Type



Redistribution Class Loss (£) Gain (£) Net Change

Redistribution by Size Class



Redistribution Class Loss (£) Gain (£) Net Change

Extra options – a scheme-based focus

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central Fife
Ayrshire Clyde Valley Lothian Dumfries & Galloway
Scottish Borders

Farm Types

Sp granivores Var granivores comb Sp dairy
Sp Hort and Perm Crop Gen Field Crop Sp cereals
Mixed Crops - Livestock Spec cattle rear and fatten
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & Goats Non Classified

Size Class

<50 50-100 100-150 150-200 200-250 250-500
>500

Baseline Scheme Participation

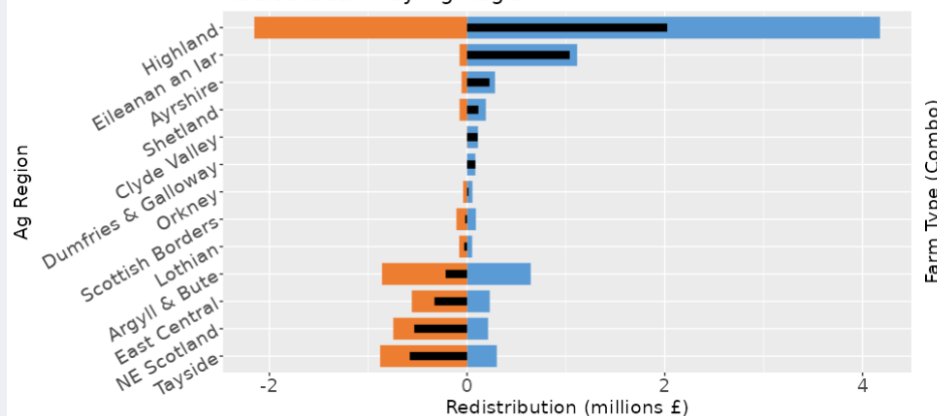
SUSSS LFASS BPS/Greening - R1 BPS/Greening - R2
BPS/Greening - R3 SSBSSI SSBSSM

Draw Graph

To take a scheme-based perspective it is possible to only include in the graphs or map a sub-set of the population based on scheme participation. In this case the Upland Sheep Support Scheme. Combinations of schemes can also be selected e.g. all the VCS schemes

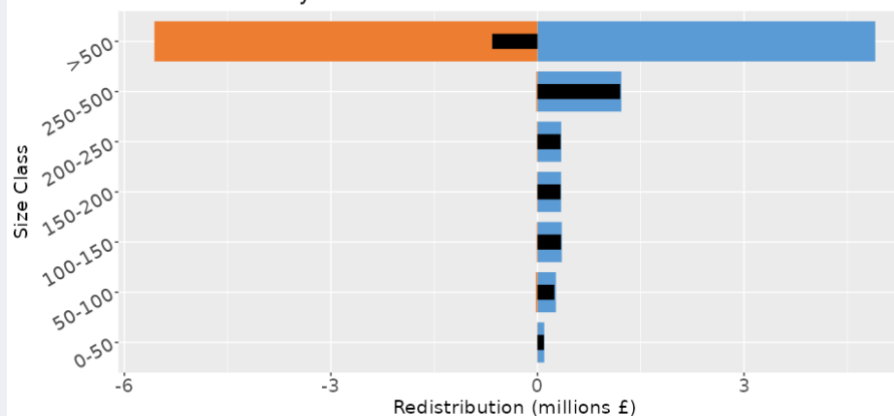
Totals Counts Map

Redistribution by Ag Region



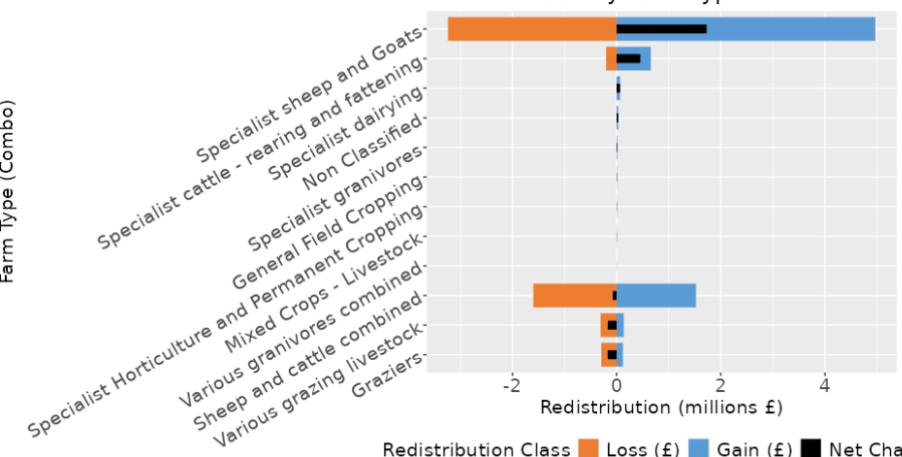
Redistribution Class Loss (£) Gain (£) Net Change

Redistribution by Size Class



Redistribution Class Loss (£) Gain (£) Net Change

Redistribution by Farm Type



Redistribution Class Loss (£) Gain (£) Net Change

Extra options – Standard Outputs

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central Fife
Ayrshire Clyde Valley Lothian Dumfries & Galloway
Scottish Borders

Farm Types

Sp granivores Var granivores comb
Sp Hort and Perm Crop Gen Field Crop
Mixed Crops - Livestock Spec cattle rear and fatten
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & Goats Non Classified

Size Class

<50 50-100 100-150 150-200 200-250 250-500
>500

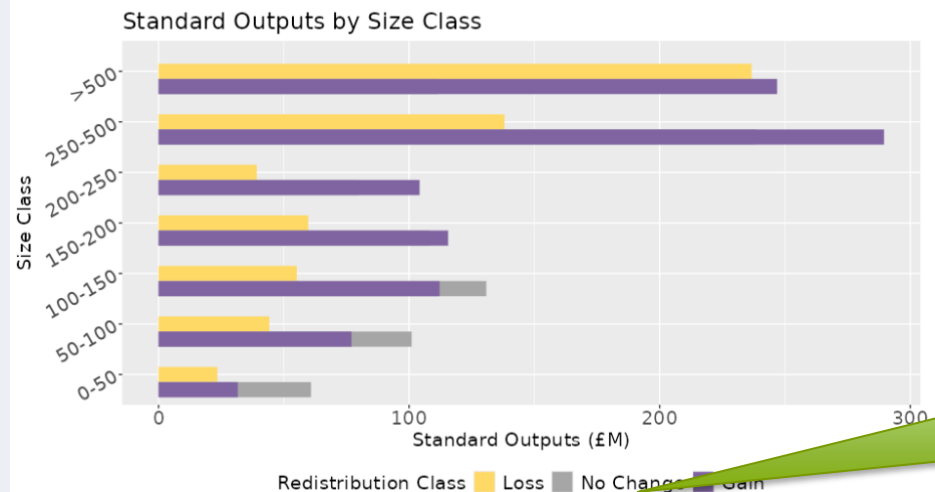
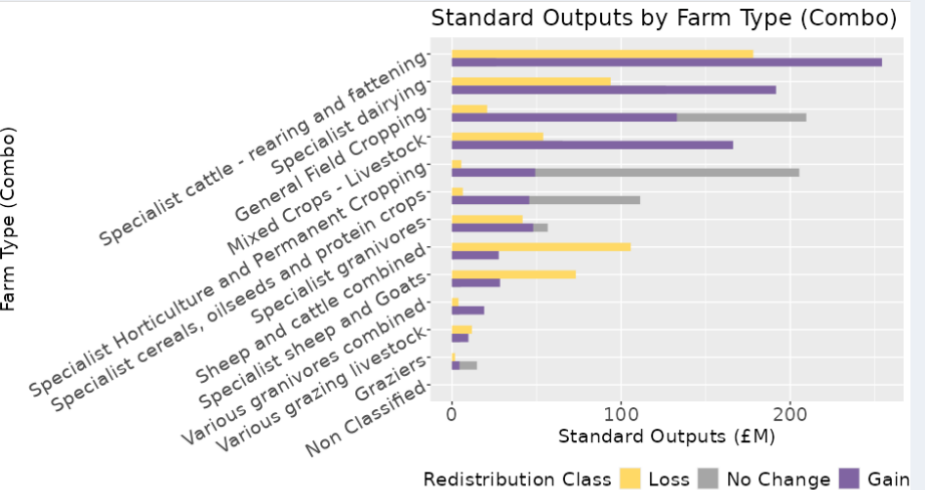
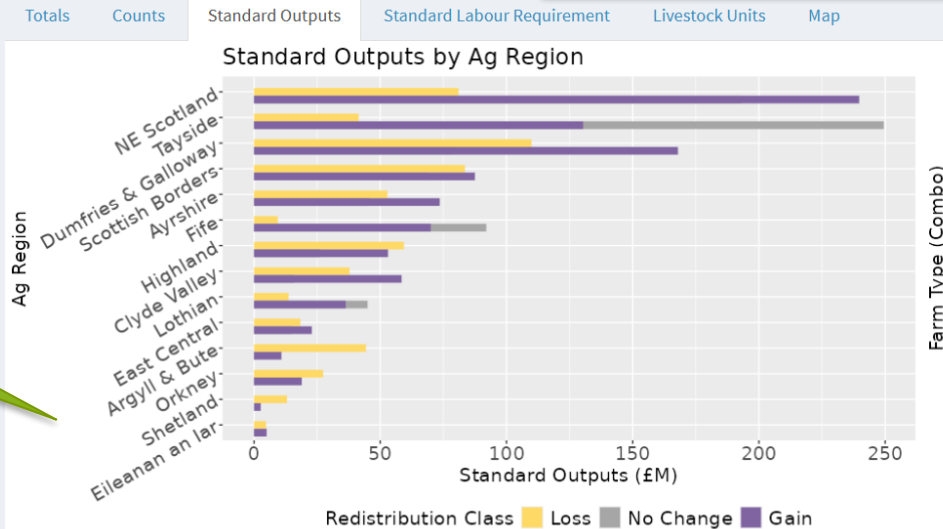
Baseline Scheme Participation

SUSSS LFASS BPS/Greening - R1 BPS/Greening - R2
BPS/Greening - R3 SSBSSI SSBSSM

Draw Graph

The regions and farm types are ordered by the total SO present.

The economic activity associated with the changes in payments loss, no change and gain are presented in three tabs – in this case the metric is standard outputs.



Interpretation – across the regions, farm types and sizes it is clear that the 2 Region no LFASS scenario is favouring higher value farm systems especially cattle. Indeed, it may be possible to reduce the VCS rates for Mainland somewhat. Businesses associated with sheep while extensive and numerous do not have high SO values and do see losses meaning that perhaps retaining a sheep VCS would be sensible.

Note the limited extents of the No Change class – for the 2 Region no LFASS scenario this only occurs for non-LFASS, no VCS and Region 1 only businesses, seen most clearly for Tayside horticulture.

Extra options – Standard Labour Requirement

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central Fife
Ayrshire Clyde Valley Lothian Dumfries & Galloway
Scottish Borders

Farm Types

Sp granivores Var granivores comb
Sp Hort and Perm Crop Gen Field Cr
Mixed Crops - Livestock Spec cattle rear and fattening
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & Goats Non Classified

SizeClass

<50 50-100 100-150 150-200 200-250 250-500
>500

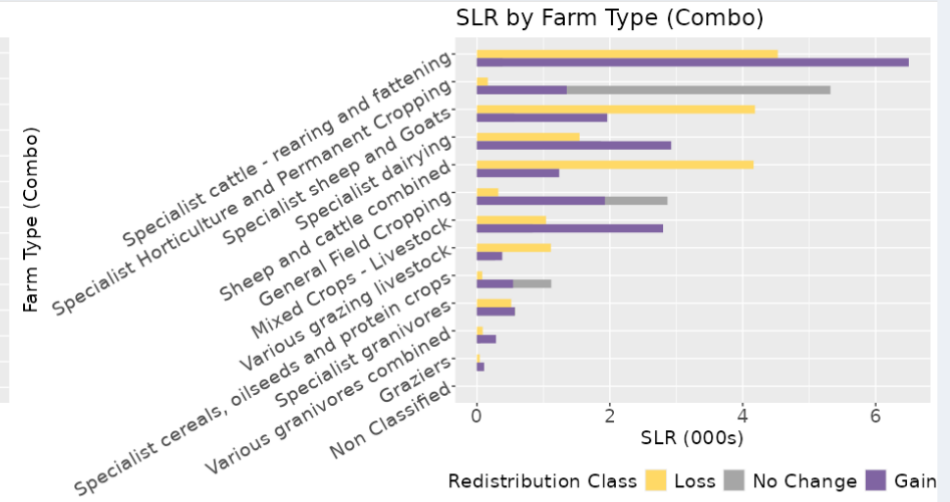
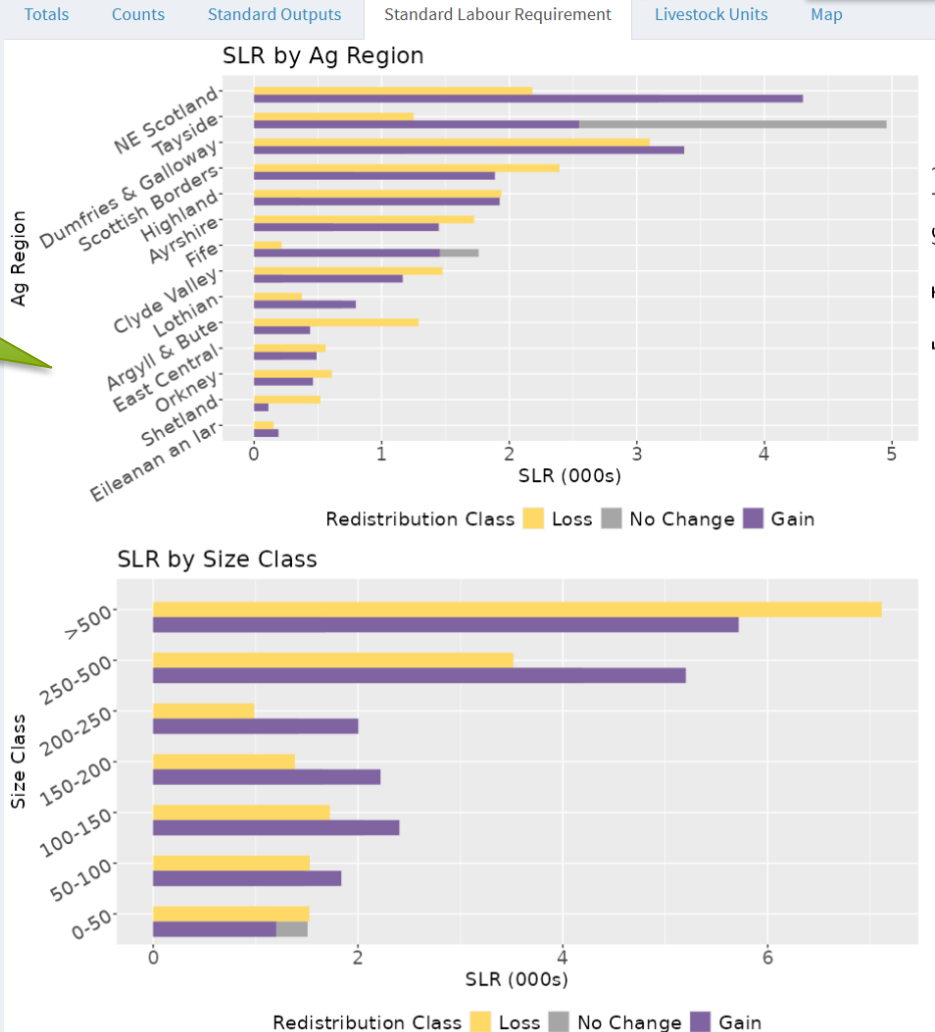
Baseline Scheme Participation

SUSSS LFASS BPS/Greening - R1 BPS/Greening - R2
BPS/Greening - R3 SSBSSI SSBSSM

Draw Graph

The regions and farm types are ordered by the total SLR present.

The economic activity associated with the changes in payments loss, no change and gain are presented in three tabs – in this case the metric is standard labour requirements.



Interpretation – as with SO the overall impression is that the 2 Region no LFASS scenario is favourable for businesses with more requirement for labour (i.e. greater activity) but again for some larger businesses (>500 ha) or activity mixes (sheep and cattle combined) then the loss class is larger. Regionally there is often a near balance between loss and gain classes except for Argyll and Bute.

Extra options – Livestock Units

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central Fife
Ayrshire Clyde Valley Lothian Dumfries & Galloway
Scottish Borders

Farm Types

Sp granivores Var granivores comb
Sp Hort and Perm Crop Gen Field Crop
Mixed Crops - Livestock Spec cattle rear and fatten
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & Goats Non Classified

SizeClass

<50 50-100 100-150 150-200 200-250 250-500
>500

Baseline Scheme Participation

SUSSS LFASS BPS/Greening - R1 BPS/Greening - R2
BPS/Greening - R3 SSBSSI SSBSSM

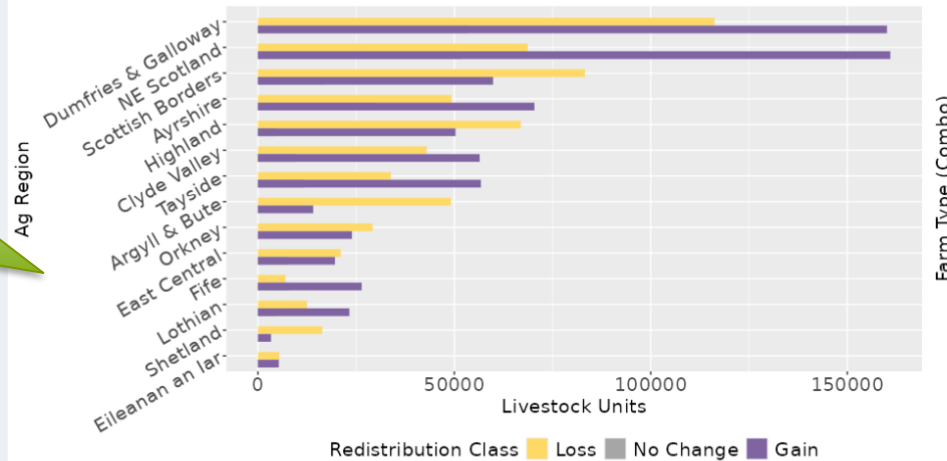
Draw Graph

The regions and farm types are ordered by the total LU's present.

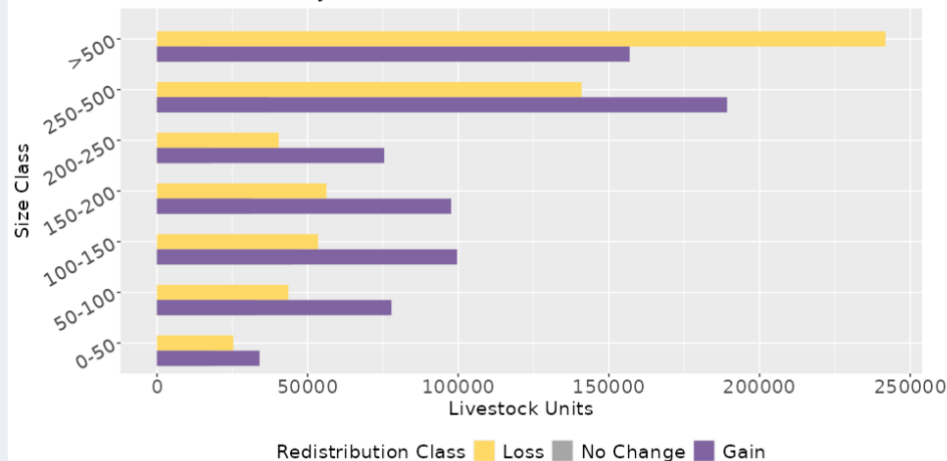
The livestock production activity associated with the changes in payments loss, no change and gain are presented this tab - the metric is livestock units.

Totals Counts Standard Outputs Standard Labour Requirement Livestock Units Map

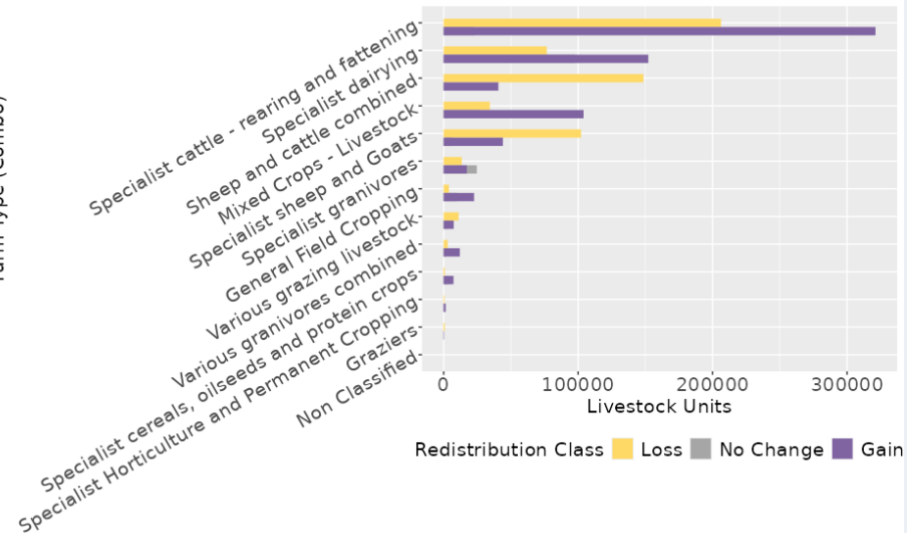
Livestock Units by Ag Region



Livestock Units by Size Class



Livestock Units by Farm Type (Combo)



Interpretation - In 500 ha or less businesses, there are more LU's associated with gain businesses (sometimes substantially more in percentage terms). Regionally there are strong gains for NE Scotland and Dumfries and Galloway likely beneficiaries of the uplift in cattle VCS payments that can be seen in the farm types with greatest LU's associated with the gain class.

Extra options – region maps

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central
Fife Ayrshire Clyde Valley Lothian
Dumfries & Galloway Scottish Borders

Farm Types

Sp granivores Var granivores comb Sp dairy
Sp Hort and Perm Crop Gen Field Crop Sp cereals
Mixed Crops - Livestock Spec cattle rear and fatten
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & Goats Non Classified

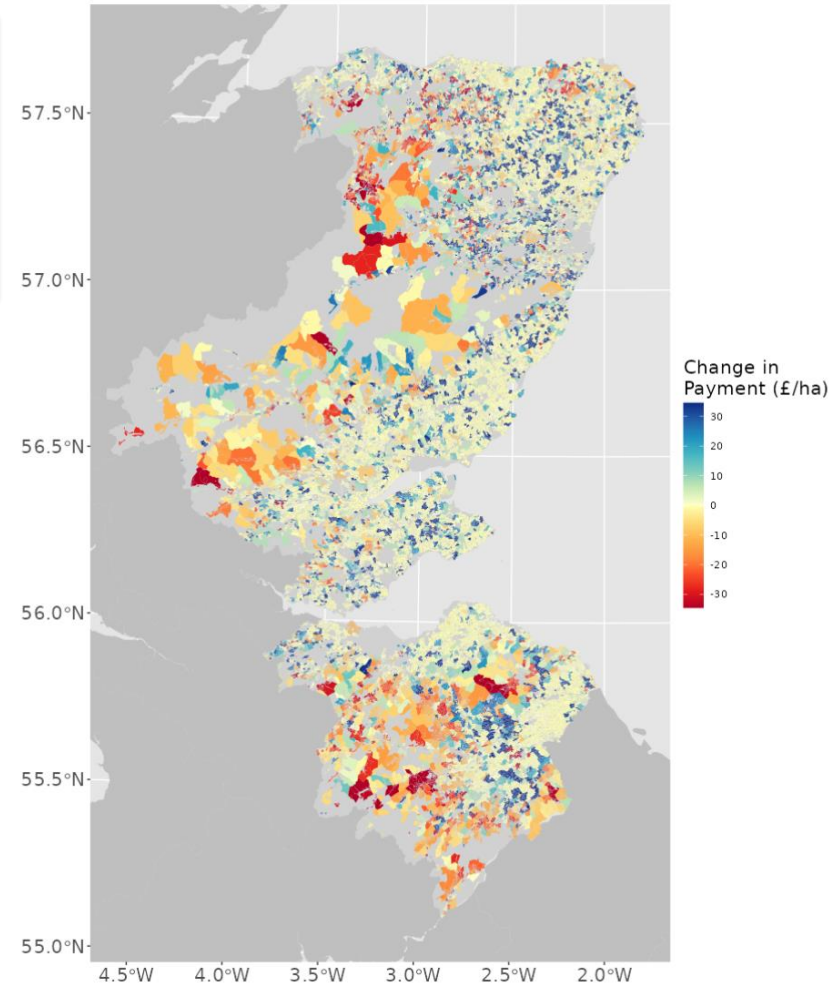
SizeClass

<50 50-100 100-150 150-200 200-250 250-500
>500

Draw Map

Totals Counts Map

A regional map for one or more Ag Regions can be generated by **unselecting** areas (by default all Ag Regions are drawn). The map extent is then redefined, and the map drawn – see the example with NE Scotland, Tayside, Fife, Lothian and Scottish Borders.



Extra options – region and farm type combination maps

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar **Highland** NE Scotland Argyll & Bute

Tayside East Central Fife Ayrshire Clyde Valley Lothian

Dumfries & Galloway Scottish Borders

Farm Types

Sp granivores Var granivores comb Sp dairy Sp Hort and Perm Crop

Gen Field Crop **Sp cereals** Mixed Crops - Livestock Spec cattle rear and fatten

Var graz livestock Sheep & cattle comb Graziers Sp sheep & Goats

Non Classified

SizeClass

<50 50-100 100-150 150-200 200-250 250-500 >500

Baseline Scheme Participation

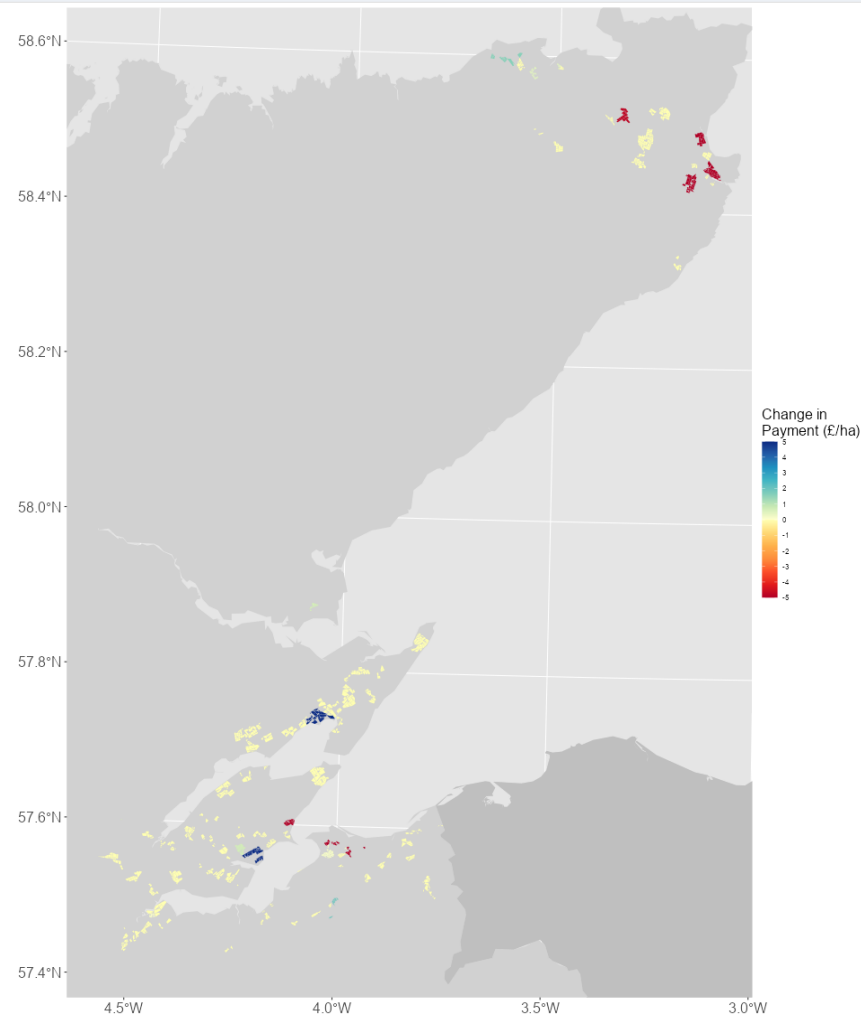
SUSSS LFASS BPS/Greening - R1 BPS/Greening - R2 BPS/Greening - R3

SSBSSI SSBSSM

Draw Map

A regional map can be further specialised for just selected farm types. Again, the option is to **unselect** the farm types not to be included. See the example of cereal farms in Highlands noting that the map extent is fitted to the businesses included not the whole Highland region.

Totals Counts Map



Extra options – region, farm type and size combination maps

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central
Fife Ayrshire Clyde Valley Lothian
Dumfries & Galloway Scottish Borders

Farm Types

Sp granivores Var granivores comb Sp dairy
Sp Hort and Perm Crop Gen Field Crop Sp cereals
Mixed Crops - Livestock Spec cattle rear and fatten
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & Goats Non Classified

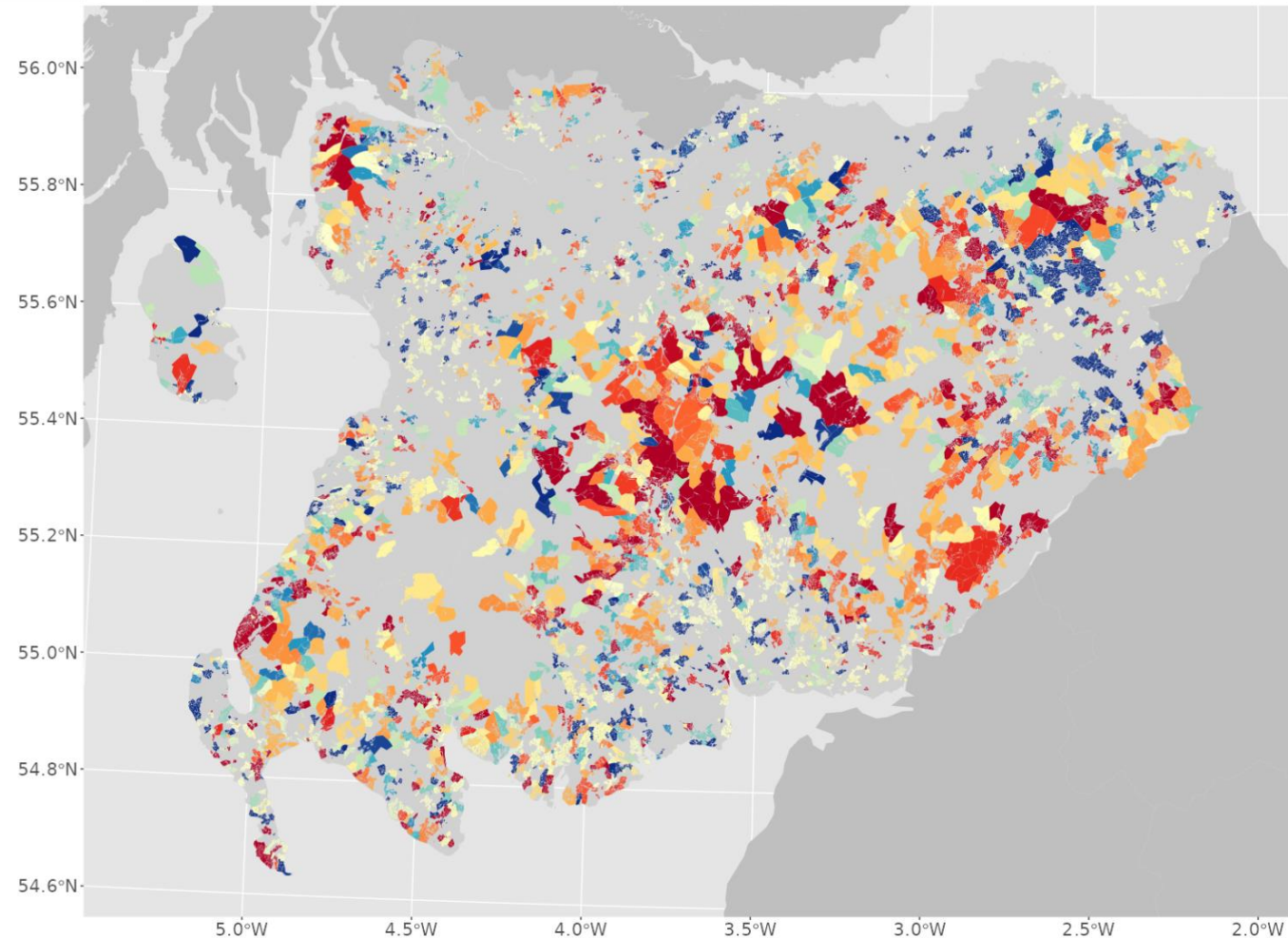
SizeClass

<50 50-100 100-150 150-200 200-250 250-500
>500

Draw Map

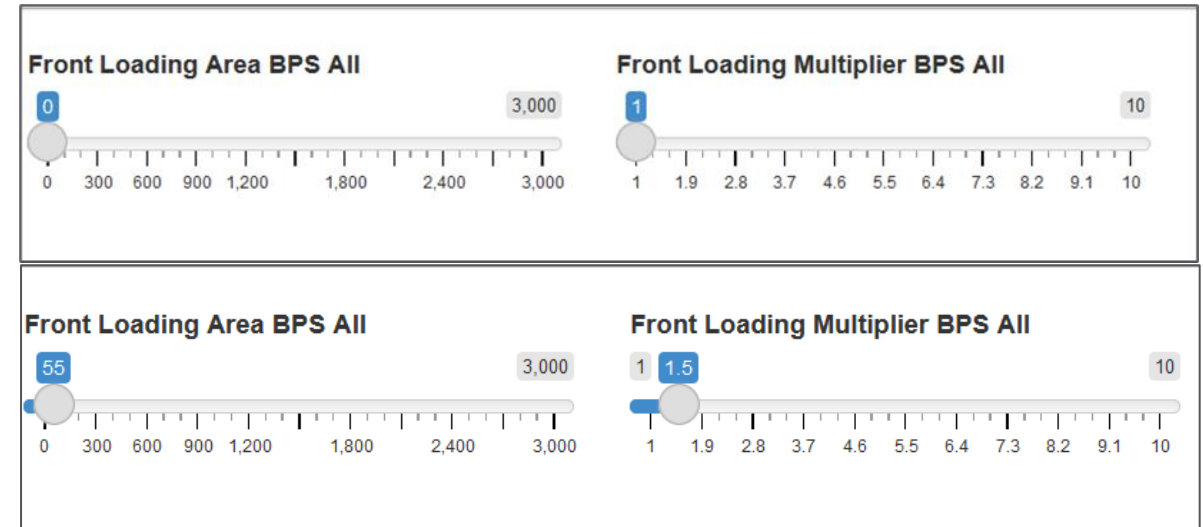
Very specialised maps are possible by taking combinations of all the types to address very specific policy or stakeholder questions. The example is South of Scotland, livestock-based farms, ≥ 200 ha.

Totals Counts Map



Adding front loading

- Front loading was also added to the 2 Region no LFASS scenario
- The area used was 55 ha which was the area used in previous front-loading analyses (reference to average size was made in rationale but highly skewed distribution may mean a median would be better)
- The weighting was 1.5 times applied to all future region area-based payments.
- Front loading can also be applied to individual future regions, LFASS (if used) and VCS (increasing payments for the first x livestock).



Outputs – 2 Region no LFASS front loaded

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland	Orkney	Eileanan an Iar	Highland
NE Scotland	Argyll & Bute	Tayside	East Central
Fife	Ayrshire	Clyde Valley	Lothian
Dumfries & Galloway	Scottish Borders		

Farm Types

Sp granivores	Var granivores comb	Sp dairy
Sp Hort and Perm Crop	Gen Field Crop	Sp cereals
Mixed Crops - Livestock	Spec cattle rear and fatten	
Var graz livestock	Sheep & cattle comb	Graziers
Sp sheep & Goats	Non Classified	

SizeClass

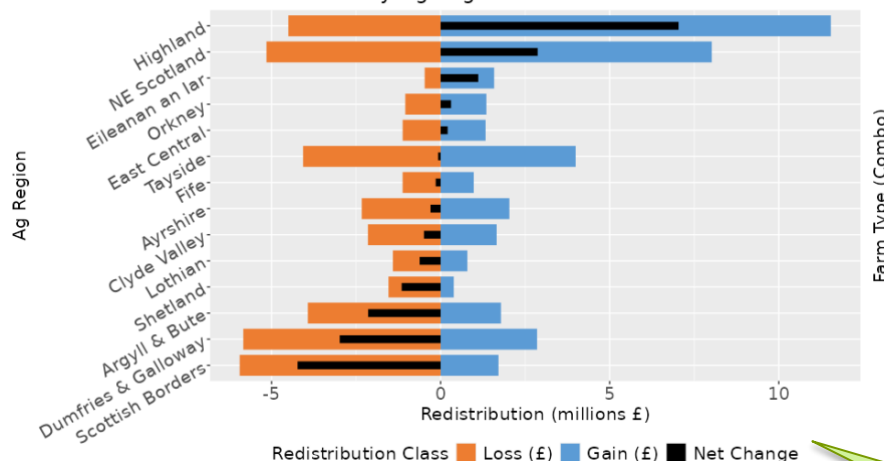
<50	50-100	100-150	150-200	200-250	250-500
>500					

Draw Graph

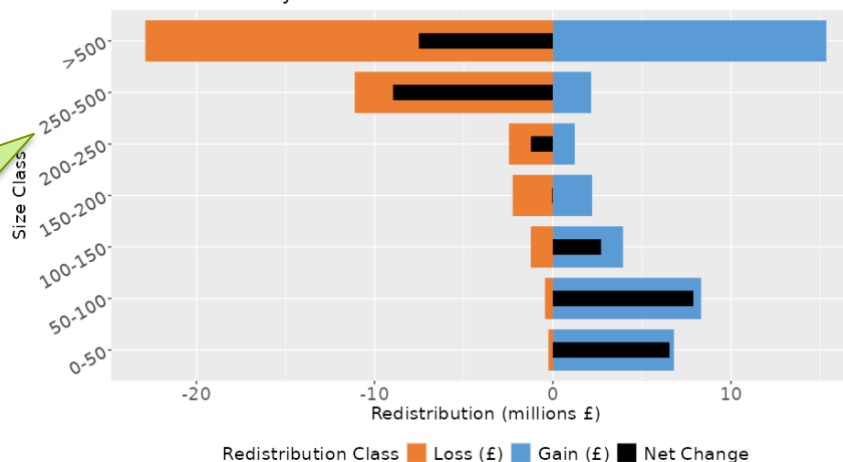
The outcomes of front loading for size class are as expected favouring businesses up to 150 ha benefitting but the losses for the 250-500 ha class move it from net gain to net loss. The >500 ha class see less losses.

Totals Counts Map

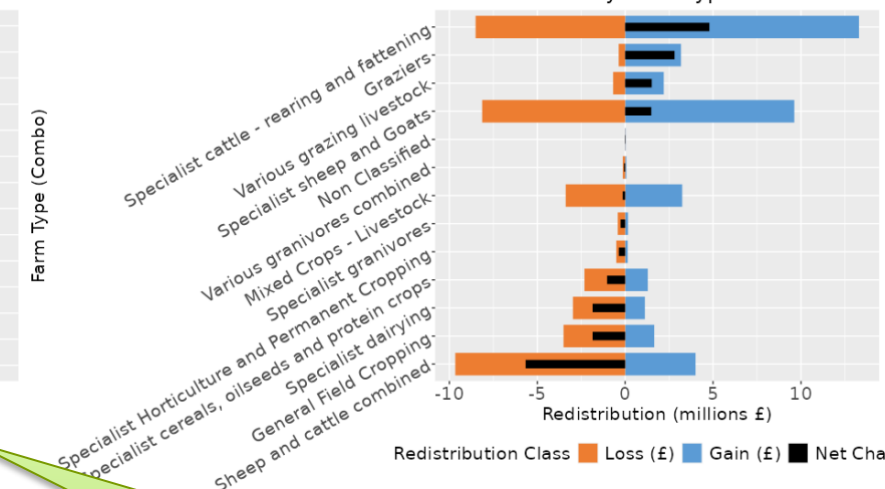
Redistribution by Ag Region



Redistribution by Size Class



Redistribution by Farm Type



The outcomes of front loading for Ag Region and Farm Type are less clear (those that are apparent are changes in ordering – e.g. Highland now the region with the largest net gain). Comparisons between scenarios need variants of these charts rather than versus the baseline.

Outputs – 2 Region no LFASS front loading

Scenario Builder

Controls Change vs Baseline Total Values

Ag Regions

Shetland Orkney Eileanan an Iar Highland
NE Scotland Argyll & Bute Tayside East Central
Fife Ayrshire Clyde Valley Lothian
Dumfries & Galloway Scottish Borders

Farm Types

Sp granivores Var granivores comb Sp dairy
Sp Hort and Perm Crop Gen Field Crop Sp cereals
Mixed Crops - Livestock Spec cattle rear and fatten
Var graz livestock Sheep & cattle comb Graziers
Sp sheep & Goats Non Classified

SizeClass

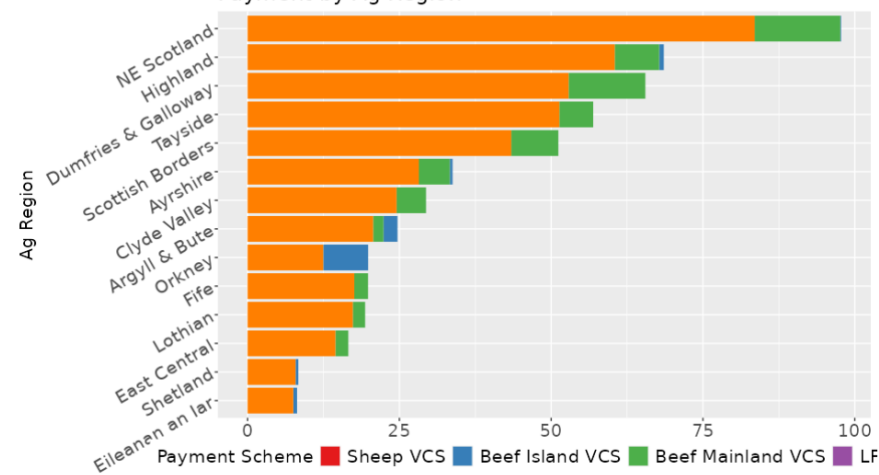
<50 50-100 100-150 150-200 200-250 250-500
>500

Draw Graph

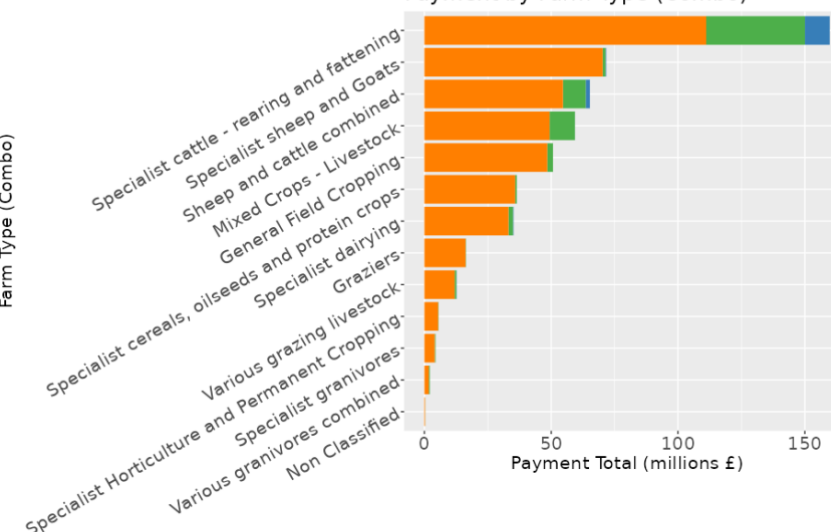
Totals

Map

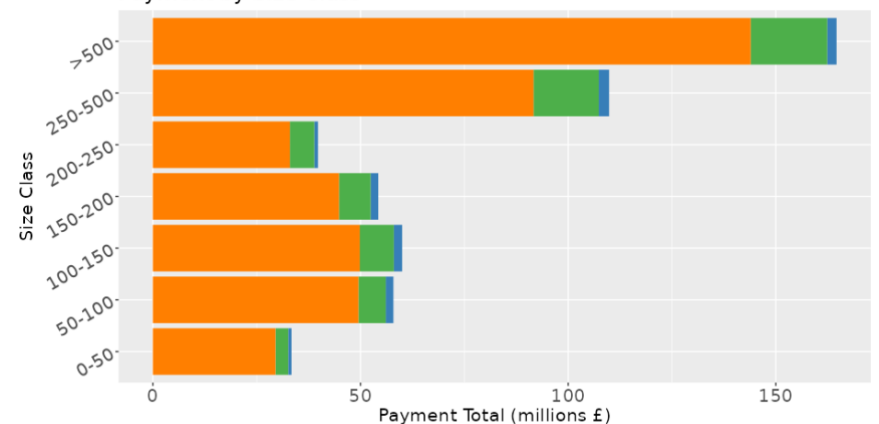
Payment by Ag Region



Payment by Farm Type (Combo)



Payment by Size Class



Payment Scheme Sheep VCS Beef Island VCS Beef Mainland VCS LF BPS/Greening

Contact – Keith Matthews, The James Hutton Institute, Aberdeen, AB15 8QH,
Tel - +44 (0)1224 395271, Email – keith.matthews@hutton.ac.uk

Further research in the RESAS Strategic Research Programme 2022-27, in the [Land Use Transformations](#) (C3-JHI-1) and [Land Reform](#) (E3-JHI-1) projects.

Land Use Transformations - [Storymaps Collection](#), with [Land Use Change Scenarios](#), [Adding Farm Structure to Land Use Change](#), [Peatlands and Payments](#), [Updating Peatland Condition Mapping](#), [Updating Land Capability for Agriculture](#) and [Climatic Water Balance in Scotland](#).

Website for [Agrometeorological Indicators](#) across the UK under current and future conditions.

The [Review of Land Ownership Data in Scotland](#).

Previous related analyses are from the Hutton Land Systems Research Team website - <https://ics.hutton.ac.uk/research/land-systems-research-team/>

The sets of slides and maps generated in Agriculture Policy analysis from 2010 onwards are available from - <https://ics.hutton.ac.uk/research/land-systems-research-team/cap-analysis/>

For woodland expansion analysis see - [online mapping](#) and [paper](#).

The James Hutton Institute is supported by the Scottish Government's Rural and Environment Science and Analytical Services Division (RESAS)



Scottish Government
Riaghaltas na h-Alba
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