



Whole Field and Soil Zone Seed Planning

July 2023



Introduction

Contour's Whole Field and Soil Zone Seed Planning tools have been designed to help farmers and their advisors create multi-crop seed plans for the whole farm in an easy process that offers precision, control, and simplicity.

Visual plan summaries and reports showing seed rate maps, rules, and seed totals by variety lend themselves to being shared, discussed, and easily implemented, helping build stronger relationships between farmer and advisor while ensuring growers are supported with the best varieties, dressings and seed rates tailored to each farm, field, and zone.

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Permissions

Permissions to access Seed Planning in Contour are managed by admin teams at account level.

As permissions are linked to each account rather than to individual users, once access to Seed Planning is enabled for an account, any user with access to that account can access all seed plans created in that account.

There are two distinct permissions related to Whole Field Planning. The first permission turns on the ability to create plans, edit them, and download the job sheet report, while the second specifically controls the ability to download a GPS file.

A separate permission turns on the ability to create and edit plans using Soil Zones, and always includes the ability to download GPS files as well as job sheets.



The Seed Planning Homepage

Navigation and Overview

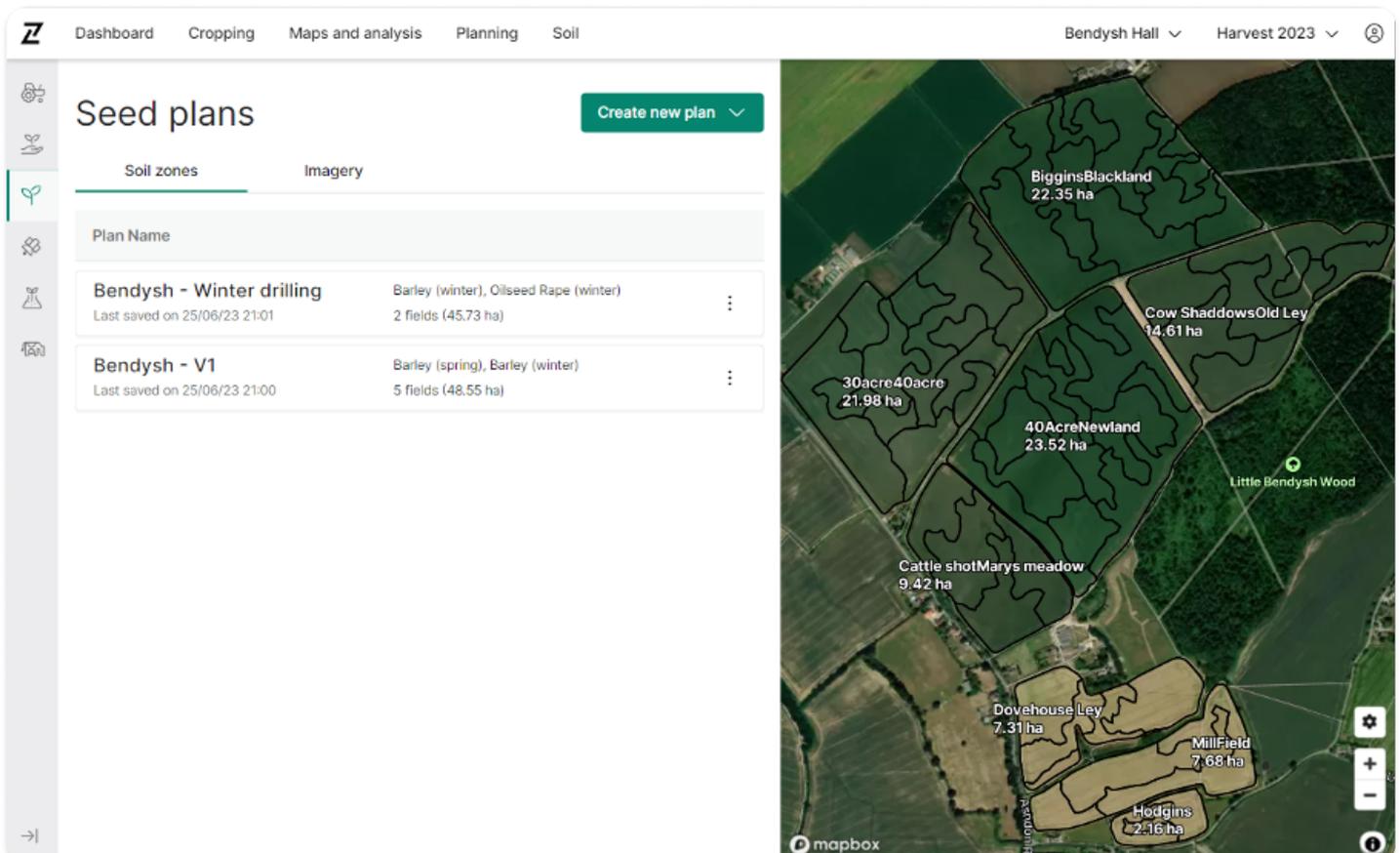
The Seed Planning homepage is your central hub for accessing and managing all seed plans, irrespective of whether they were created using Soil Zones, Whole Field, or Imagery. Whole Field seed plans will always be shown in the first tab alongside Soil Zone plans.

Applying Filters

The filters located in the top right-hand menu select specific farm and harvest year, and only plans for that farm and year are displayed, allowing you to easily locate and manage the relevant plans.

Plan Management

From the homepage, you're equipped with all the tools you need to effectively manage your plans. This includes creating new plans, editing existing ones, or downloading reports and GPS files. To keep your workflow organised, plans are systematically ordered based on the last time they were saved, ensuring that your most recent work is always easily accessible at the top of the list.



The screenshot displays the 'Seed plans' interface in the Contour application. The top navigation bar includes 'Dashboard', 'Cropping', 'Maps and analysis', 'Planning', and 'Soil'. The current view is for 'Bendysh Hall' and 'Harvest 2023'. The 'Seed plans' section has two tabs: 'Soil zones' (selected) and 'Imagery'. A 'Create new plan' button is visible. Below the tabs is a table of plans:

Plan Name	Fields	Area
Bendysh - Winter drilling	Barley (winter), Oilseed Rape (winter)	2 fields (45.73 ha)
Bendysh - V1	Barley (spring), Barley (winter)	5 fields (48.55 ha)

To the right of the table is a map showing the layout of fields with labels and areas:

- BigginsBlackland: 22.35 ha
- Cow ShaddowsOld Ley: 14.61 ha
- 30acre40acre: 21.98 ha
- 40AcreNewland: 23.52 ha
- Little Bendysh Wood
- Cattle shotMarys meadow: 9.42 ha
- Dovehouse Ley: 7.31 ha
- MillField: 7.68 ha
- Hodgins: 2.16 ha

Creating Your Plan

To start, give your plan a name and select the crops and fields you want to include. For flexibility, a single plan can include multiple crops, which means you can potentially have one plan that covers the entire farm.

Selecting Fields

There are two ways to select fields to include in the plan: you can use the main menu on the left-hand side, or click directly on the map. In the left-hand menu, crops can be expanded to reveal all varieties and associated fields. Selecting at the crop or variety level will automatically select all related fields.

The screenshot displays the software interface for creating a plan. The top navigation bar includes 'Dashboard', 'Cropping', 'Maps and analysis', 'Planning', and 'Soil'. The user is currently in the 'Planning' section, with 'Bendysh Hall' and 'Harvest 2023' selected. The interface is divided into a left-hand menu and a main map area.

The left-hand menu shows the 'Set up' tab selected. It includes a search bar for 'Enter plan name' and a summary of the current selection: '2 crops selected', '2 Varieties', '5 Fields', and '50.08 ha'. The crops are listed as follows:

Crop	Variety	Fields	Area (ha)
Barley (spring)	1 Variety	4 Fields	26.56 ha
Skyway		4 Fields	26.56 ha
Cattle shotMarys meadow			9.42 ha
Dovehouse Ley			7.31 ha
Hodgins			2.16 ha
MillField			7.68 ha
Barley (winter)	1 Variety	1 Field	21.98 ha
Oilseed Rape (winter)	1 Variety	1 Field	23.52 ha

The map area on the right shows a satellite view of the farm with fields outlined and color-coded to match the selection in the menu. The fields are labeled with their names and areas:

- Biggins Blackland: 22.35 ha (green)
- Cow Shaddows Old Ley: 14.61 ha (red)
- 40 Acre Newland: 23.52 ha (red)
- 30 acre 40 acre: 21.98 ha (blue)
- Cattle shot Marys meadow: 9.42 ha (orange)
- Dovehouse Ley: 7.31 ha (orange)
- MillField: 7.68 ha (orange)
- Hodgins: 2.16 ha (orange)

The interface also includes an 'Exit' button and a 'Next' button at the bottom of the menu. The map is powered by Mapbox.

Creating and Setting Up a Plan

Setting Your Plan Unit

To suit your machinery requirements and personal preferences, you can set your plan unit to use kg/ha, seeds/m², or seeds/ha.

Setting the Base Rate

Once your fields and crops are selected, add the base rate that you want applied to all fields by crop.

You also have the option to add additional rules to set a different base rate for specific varieties or even individual fields. This allows you to tailor your plan to accommodate variations in plant establishment such as fields that typically underperform.

Dashboard Cropping Maps and analysis Planning Soil Bendysh Hall Harvest 2023

Rules

seeds/m² kg/ha seeds/ha

Base rate (3)

	Base rate	TGW
Barley (spring)	200	50
If Skyway		
Oilseed rape (winter)		
Observations		
Polygon (0)		

Back to plan Save rules

Dashboard Cropping Maps and analysis Planning Soil Bendysh Hall Harvest 2023

Rules

seeds/m² kg/ha seeds/ha

Base rate (4)

	Base rate	TGW
Barley (spring)	200	50
If Skyway Cattle sh...	300	50
If Skyway Hodgins...	250	50
Oilseed rape (winter)	400	100
Observations (0)		
Polygon (0)		

Back to plan Save rules

Adding Soil Rules - Soil Zone Plans only

Incorporating Soil Attributes

Soil rules enable you to adjust the seed base rate by zone according to specific soil attributes. The soil attributes available for selection depend on the types of soil sampling that have been performed on the farm. These may include clay, silt, sand, topsoil texture number, soil code, stone content, and more.

When you select a soil attribute, the corresponding soil map will display, assisting you in creating the rule.

Adjusting Seed Rates

Rules adjust the seed rate in each zone based on a percentage value of the base rate, enabling you to either increase or decrease the seed quantity. For instance, if the base rate is 200 seeds/m², a rule increasing it by 20% will add an additional 40 seeds/m² to the applicable zones.

Each zone can have multiple rules applied to calculate its seed rate, allowing for granular control and highly customised planning.

The screenshot displays the 'Rules' configuration screen on the left and a soil map on the right. The 'Rules' panel is titled 'Rules' and shows a list of rules for different crops. The 'Base rate (5)' section includes rules for Barley (spring) and Wheat (Winter). The 'Rules (1)' section shows a rule for Clay content.

Crop	Condition	Base rate	TGW	Action
Barley (spring)	-	200	50	+
If Cosmop...	All fields	300	50	🗑️
If Firefoxx	Cattle s...	250	50	🗑️
Wheat (Winter)	-	200	50	+
If Costello	Biggins...	250	48	🗑️

The 'Rules (1)' section shows a rule for Clay content:

If **Clay** is between **38** % and **51** %
Then **increase** the base rate by **50** %

The soil map on the right shows a field divided into zones, with a legend for Clay content. The legend indicates that zones with clay content between 38% and 51% are highlighted in grey. The map shows several zones with numbers, indicating their clay content. The map is titled 'Clay' and shows a field with various zones, including 'Little Bendysh Wood' and 'Ra'.

Adding Soil Rules - Soil Zone Plans only

Adding Exceptions

Exceptions allow you to set conditions that override other rules, so that if the condition is met, a specific rate will always be applied regardless of any other rules.

For example, you might want to apply a rule that says where clay content is higher, increase the base rate. However if sand content is high, override that rule to apply a different amount of seed.

The screenshot displays the RHIZA software interface. On the left, the 'Rules' configuration panel is visible, showing settings for 'Barley (spring)' and 'Wheat (Winter)'. The 'Barley (spring)' rule has a base rate of 200 and a TGW of 50. It includes two 'If' conditions: 'Cosmop...' with 'All fields' and 'Firefoxx' with 'Doveho...'. The 'Wheat (Winter)' rule has a base rate of 200 and a TGW of 50, with an 'If' condition for 'Costello' and 'Biggins...'. Below these, a summary section shows 'Rules (1)' and 'Exceptions (1)'. The rule states: 'If Clay is between 38% and 51%, Then increase the base rate by 50%'. The exception states: 'Except if Sand is between 25% and 30%, Then only increase the base rate by 30%'. A 'Save rules' button is at the bottom right of the panel.

On the right, a map of a field is shown with a color-coded soil zone plan. The map is titled 'Bendysh hall' and 'Harvest 2023'. A legend at the bottom indicates a scale from ≤ 14 to ≥ 34. The map shows various soil zones with numerical values ranging from 14 to 34. A 'Sand' dropdown menu is visible at the top of the map area.

Adding Observation Rules

Adding Observation Rules

Observation-based rules enable you to factor issues and problem areas identified when scouting into your plan, such as increasing seed rate where blackgrass has been observed.

Choosing Observations

Click '+' to choose from a list of all observations that cover an area greater than 0.1 ha within the fields of your plan. Observations can be filtered by their category and creation date.

The screenshot displays the 'Observations' section of the Contour RHIZA software. The top navigation bar includes 'Dashboard', 'Cropping', 'Maps and analysis', 'Planning', and 'Soil'. The user is logged in as 'Bendysh Hall' for the 'Harvest 2023' season. The left sidebar contains navigation icons for home, observations, maps, and reports.

The main content area is titled 'Observations' and features a filter menu with categories: 'Pest', 'Weed', 'Disease', 'Sampling', and 'Other'. The 'Weed' category is selected. Below the filter menu is a date range selector set to 'Anytime'. A table lists the following observations:

Timestamp	Field	Observation
<input type="checkbox"/> 15/02/2023 01:12	40AcreNewland	Weed
<input type="checkbox"/> 15/02/2023 01:07	40AcreNewland	Weed
<input type="checkbox"/> 22/03/2017 01:37	MillField	Weed
<input type="checkbox"/> 27/11/2016 02:50	Dovehouse Ley	Weed
<input checked="" type="checkbox"/> 27/11/2016 02:47	MillField	Weed
<input checked="" type="checkbox"/> 10/11/2016 10:28	Cattle shotMarys meadow	Weed
<input checked="" type="checkbox"/> 10/11/2016 10:04	40AcreNewland	Weed

At the bottom of the observations list are two buttons: 'Back to plan' and 'Add to rules'. The right side of the interface shows a satellite map of the fields, with a 'Crop' dropdown menu and a 'mapbox' logo at the bottom.

Adding Observation Rules

Viewing and Editing Observations

Selecting an observation will apply the associated polygon area to the seed map, where it can be viewed and edited directly within seed planning for precise control of the area that rules should apply to.

This will only update the observation within your current seed plan and not elsewhere.

Creating Observation Rules

For each observation added, you can set a rule to apply to that specific area. No other plan rules will apply to these areas.

The seed rate for an observation area is calculated based on the base rate of the corresponding field. For example, if the base rate for a field is 200:

- Decreasing the base rate by 100% will result in a seed rate of 0 regardless of other rules that may apply to that field or zone
- Increasing the base rate by 50% will result in a seed rate of 300 regardless of other rules that may apply to that field or zone

The screenshot displays the 'Rules' configuration page in a web application. The left sidebar contains navigation icons for various features. The main content area is titled 'Rules' and shows a list of crop rules. Each rule has a crop name, a base rate, and a percentage adjustment. Below the rules, there are three 'Observations' listed, each with a condition (e.g., 'Blackgrass (Weed)') and an action (e.g., 'increase the base rate by 100%'). A 'Polygon (0)' section is also visible. At the bottom, there are 'Back to plan' and 'Save rules' buttons. On the right, a map shows a field layout with several colored polygons (blue, green, red, orange) overlaid on a satellite image. The map includes a 'Crop' dropdown menu and various map controls like zoom and pan.

Crop	Base Rate	Adjustment
Barley (spring)	200	50
If Skyway	300	50
If Skyway	250	50
Oilseed rape (winter)	400	100

Adding Polygon Rules

In addition to using observations, you can create custom polygons within the Seed Planning flow and assign specific rules to these regions. This feature is particularly useful for areas such as headlands.

Creating Polygons

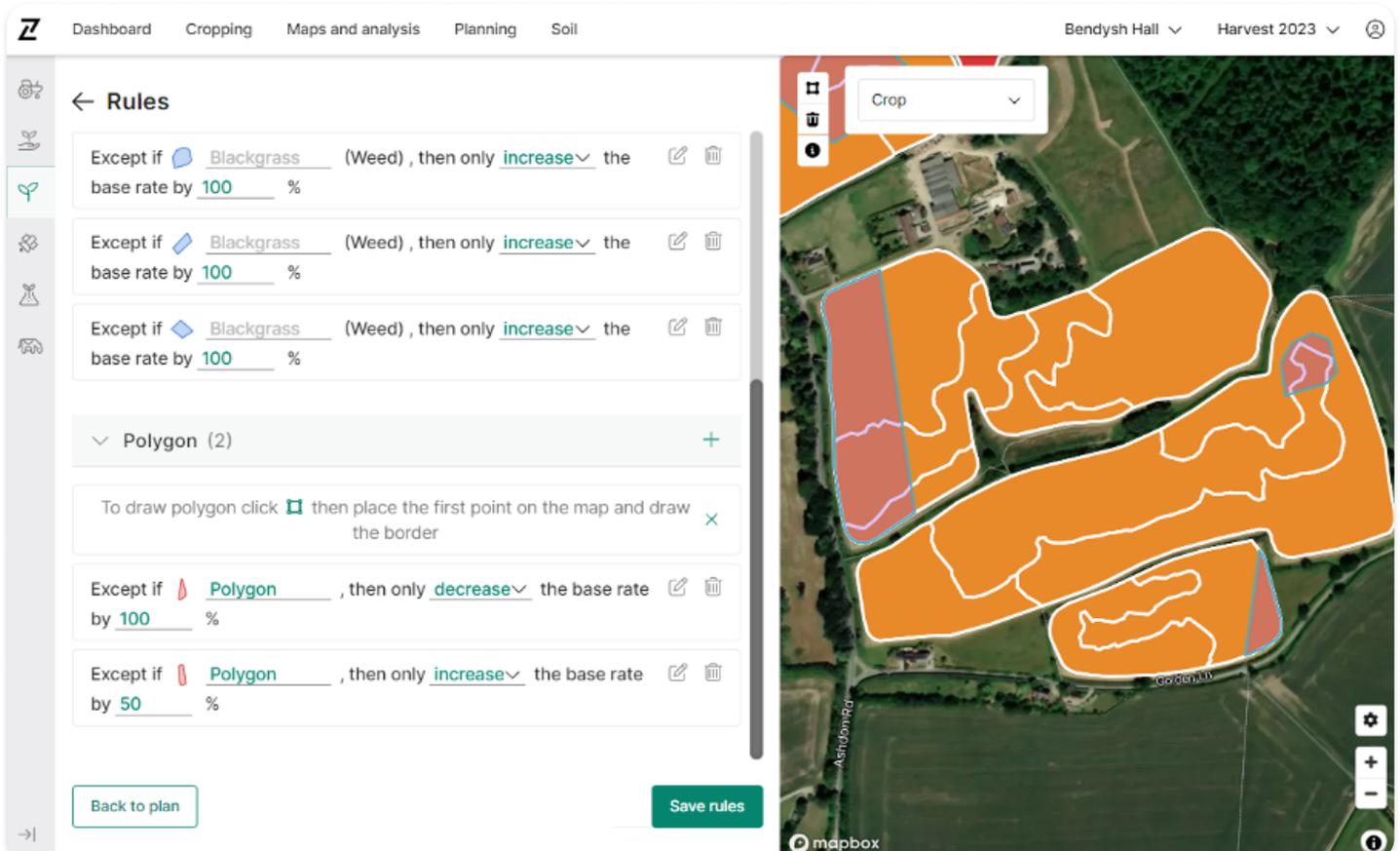
To add a polygon, click on the '+' symbol, then use the map drawing tools to mark out your shape. Start by clicking on the map to place the initial point, then continue to add points around the desired area, finally clicking back onto the first point to complete the shape.

Clipping and Field Requirements

The Polygon tool is designed to automatically adjust or 'clip' shapes to fit within a single field. Note that any polygons drawn must cover an area greater than 0.1 ha and be within fields already included in your plan.

Applying Rules to Polygons

Rules for polygons function exactly as observation rules do. Specifically, for each polygon added, you can set a rule to apply to that specific area, with no other plan rules affecting these areas.

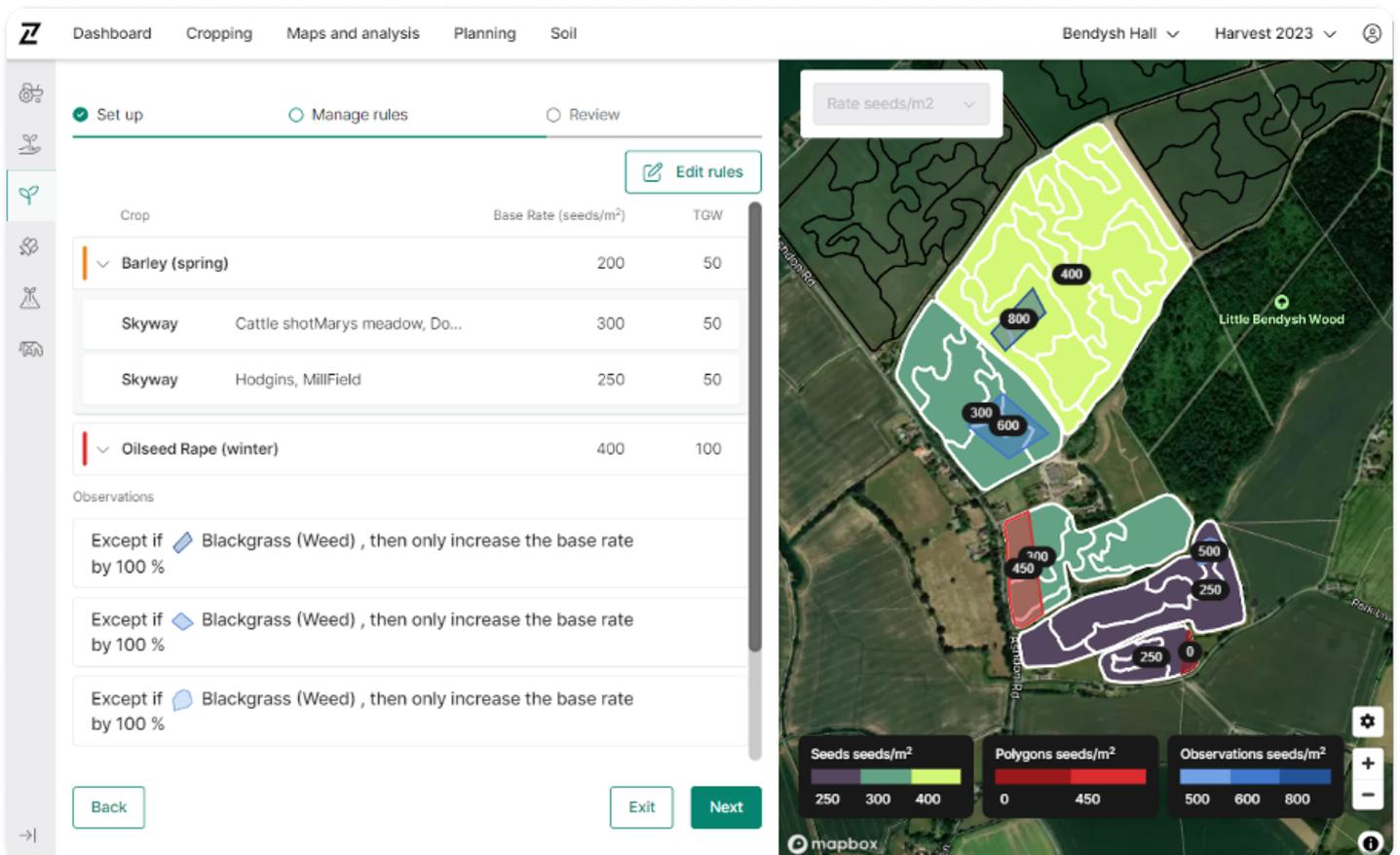


Reviewing Your Plan

Once all rules have been added and saved, you can check your plan comprehensively. This includes viewing the total seed required per variety, reviewing the seed map to scrutinise rates by area, and inspecting the area to be drilled alongside the average rate.

Seed Plan Map

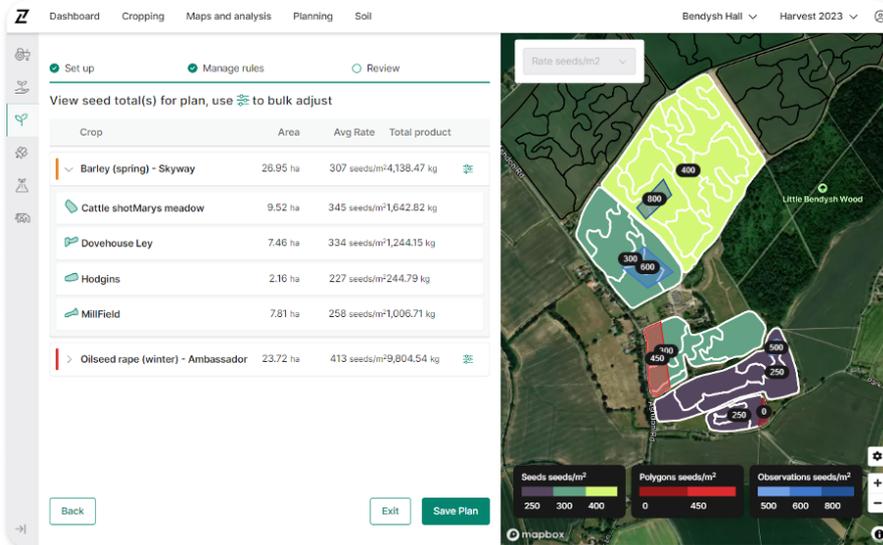
The seed plan map provides a visual overview of all seed rates. Rates are displayed directly on the map and via a legend, with different colours assigned to fields, polygons, and observations.



Reviewing Your Plan

Plan Review Page

The plan review page offers a detailed breakdown of seed totals for each crop variety, with the option to expand the view to see seed totals by field.

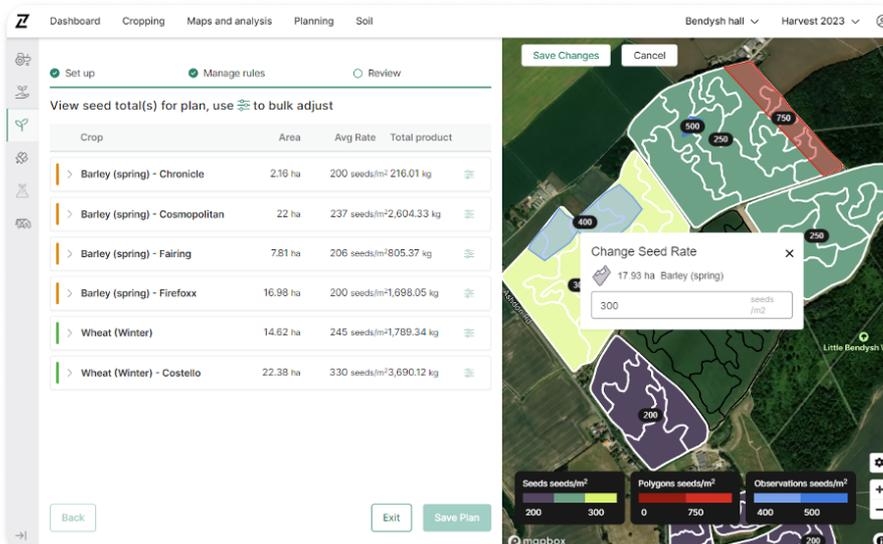


Fine-Tuning Your Plan

Contour Seed Planning has been designed to provide flexibility to tweak seed rates for each area, allowing you to directly adjust rates as necessary.

You can override the rate for any field, zone, observation, or polygon on the seed map by selecting the 'edit' button at the top left of the seed map. This action will allow you to select any area on the map and enter your desired seed rate to immediately update the plan.

After making all necessary adjustments, save your changes and then the seed totals displayed in the left-hand menu will update.



Making Bulk Adjustments

Making Bulk Adjustments

Bulk adjustments enable you to round up or down your total seed requirement for any variety, making it easy to match your plan to the amount of seed you are looking to apply or order. For example, you may wish to ensure that a plan exactly uses up the seed in the bag.

Making Adjustments

Click the bulk adjust button to make an adjustment. Current total product required for your selected fields will be displayed for your review.

By default, new adjustments will apply to all fields using that variety, but you can also select only specific fields to include. For example if rounding up to finish off a bag, you could select to apply the increase only to specific fields that typically perform less well, rather than spreading the increase equally across all fields.

To make a bulk adjustment, either enter your desired new total product requirement for that variety, or set a percentage change. Multiple bulk adjustments can be made to a plan.

Changes will only be applied to your plan when you click 'save changes'. *Note that you also still need to save your plan as a whole to permanently save these changes.*

The screenshot displays the 'Bulk adjust' interface for 'Barley (spring) - Skyway'. It includes a table of fields and a map showing the application of seed rates to different polygons.

Field	Area	Avg Rate	Total product
Field	26.95 ha	307.1 seeds/m ²	4,138.47 kg
Cattle shot Marys meadow	9.52 ha	345 seeds/m ²	1,642.82 kg
Dovehouse Ley	7.46 ha	334 seeds/m ²	1,244.15 kg
Hodgins	2.16 ha	227 seeds/m ²	244.79 kg
MillField	7.81 ha	258 seeds/m ²	1,006.71 kg

The map shows several polygons with different seed rates: 300, 400, 500, 600, 800, and 0. The interface also includes a 'Rate seeds/m²' dropdown menu and a 'Save changes' button.

Making Bulk Adjustments

Bulk Adjustments and Further Rule Edits

Once one or more bulk adjustments have been applied, you will no longer be able to edit any plan rules. In cases where you need to edit rules after making a bulk adjustment, you have the option to undo all bulk adjustments, restoring your ability to make rule edits.

The screenshot displays the Zed software interface. The top navigation bar includes 'Dashboard', 'Cropping', 'Maps and analysis', 'Planning', and 'Soil'. The current location is 'Bendysh hall' and the harvest year is 'Harvest 2023'. The left sidebar contains various icons for navigation. The main content area is divided into two sections:

Left Panel: Bulk Adjustment Warning and Table

At the top, there are three tabs: 'Set up' (checked), 'Manage rules' (checked), and 'Review'. Below the tabs, the text reads: 'View seed total(s) for plan, use [icon] to bulk adjust'. A warning box states: 'Unable to edit rules as bulk adjustment(s) made. To make changes undo bulk adjust.' Below the warning is a table with the following data:

Crop	Area	Avg Rate	Total product	
> Barley (spring) - Chronicle	2.16 ha	185 seeds/m ²	200 kg	[icon]
> Barley (spring) - Cosmopolitan	22 ha	237 seeds/m ²	2,604.33 kg	[icon]
> Barley (spring) - Fairing	7.81 ha	206 seeds/m ²	805.37 kg	[icon]
> Barley (spring) - Firefoxx	16.98 ha	200 seeds/m ²	1,698.05 kg	[icon]
> Wheat (Winter)	14.62 ha	245 seeds/m ²	1,789.34 kg	[icon]
> Wheat (Winter) - Costello	22.38 ha	330 seeds/m ²	3,690.12 kg	[icon]

At the bottom of the left panel are buttons for 'Back', 'Exit', and 'Save Plan'.

Right Panel: Field Map

The right panel shows an aerial map of a field with various colored polygons representing different crop areas. The map includes a legend at the bottom with three categories:

- Seeds seeds/m²**: A color scale from purple (185) to yellow (250).
- Polygons seeds/m²**: A color scale from red (0) to orange (750).
- Observations seeds/m²**: A color scale from blue (400) to black (500).

The map also features an 'Edit Rate' button at the top and a 'mapbox' logo at the bottom left.

Downloads: Job Sheet Reports & GPS Files

From the seed homepage, you can export and download any seed plan as either a job sheet or in GPS format by clicking the three dots next to it.

Job Sheet Reports

Job sheet reports provide a summary of total seed required by variety, total seed by field for each variety, and an application map.

RHIZA Harvest Year: 2023, Harvest Season: 1

Soil Zone Seed Plan

Bendysh Hall - Farm Plan 2024

Plan Details:

- Crop types:
 - Barley (spring)
 - Oilseed Rape (winter)
- Rate unit: seeds/m²

Total product

Crop variety	Average rate (seeds/m ²)	Area (ha)	Total product (tonnes)
Barley (spring) - Skyway	296.0	26.95	4.0
Oilseed Rape (winter) - Ambassador	413.0	23.72	9.8

Barley (spring) - Skyway total per field

Field name	Average rate (seeds/m ²)	Area (ha)	Total product (tonnes)	Thousand grain weight (g)
Cattle shotMarys meadow	333.0	9.52	1.59	50
Dovehouse Ley	322.0	7.46	1.2	50
Hodgins	219.0	2.16	0.24	50
MillField	249.0	7.81	0.97	50

You can download the report to your device from the 'Reports' tab. Once downloaded, a notification will appear at the bottom left of your screen on most browsers, which you can use to open the PDF file. Alternatively, you will be able to find the file in your downloads folder.

Seed plans Create new plan

Soil zones Imagery

Plan Name

- Farm Plan 2024** Barley (spring), Oilseed Rape (winter)
Created on 25/06/23 21:18 5 fields (50.88 ha)
- Bendysh - Winter drilling** Barley (winter), Oilseed Rape (winter)
Last saved on 25/06/23 21:01 2 fields (45.73 ha)
- Bendysh - V1** Barley (spring), Barley (winter)
Last saved on 25/06/23 21:00 5 fields (48.55 ha)

Downloads

GPS Files Reports

The report includes product totals and job sheets in pdf format.

Download report

GPS Files

To download GPS files ready for drilling, first choose the preferred file type for your machinery on the 'GPS Files' tab.

If you are downloading as shapefiles, you will need to select whether you want one file for all fields or a separate file for each field. Certain GPS files may also prompt you to enter default rates for each crop, to be used when GPS signal is lost or outside the field boundary.

The screenshot displays the 'Seed plans' section of the software interface. The main panel shows a list of plans:

Plan Name	Crops	Fields (ha)
Farm Plan 2024 Created on 25/06/23 21:18	Barley (spring), Oilseed Rape (winter)	5 fields (50.68 ha)
Bendysh - Winter drilling Last saved on 25/06/23 21:01	Barley (winter), Oilseed Rape (winter)	2 fields (45.73 ha)
Bendysh - V1 Last saved on 25/06/23 21:00	Barley (spring), Barley (winter)	5 fields (48.55 ha)

The 'Downloads' modal window is open, showing the 'GPS Files' tab. It includes the following options:

- File types:** Shapefile
- Field Options:**
 - Multiple fields per file:** Combine all fields per application into a single GPS file.
 - One field per file:** Create one GPS file per field and application.
- Zero rate zones:**
 - Include zones with zero rate
 - Exclude zones with zero rate
- Download files** (button)

Download Time and Status

Depending upon the size of the plan and your internet connection, downloading files may take some time.

To avoid waiting, users can navigate away from the plan while GPS files are being generated and access them later from the seed homepage, even if the Contour session is closed.

The status of a download can be checked from the seed homepage and will be marked as one of the following:

- **In progress** Still downloading
- **Failed** There was a problem, try downloading again
- **Successful** Click on icon to view file
- **Expired** Plan has been updated since last downloaded, so needs a fresh download

Plan Name	Crops	Fields / Area	Actions
Farm Plan 2024 Created on 25/06/23 21:18	Barley (spring), Oilseed Rape (winter)	5 fields (50.68 ha)	Download icon, More options icon
Bendysh - Winter drilling Last saved on 25/06/23 21:01	Barley (winter), Oilseed Rape (winter)	2 fields (45.73 ha)	More options icon
Bendysh - V1 Last saved on 25/06/23 21:00	Barley (spring), Barley (winter)	5 fields (48.55 ha)	More options icon

Editing Existing Plans

You can view and edit any existing seed plan directly from the seed homepage. When making adjustments, it's important to note that any changes made to the crop or field selections will likely necessitate revisions to the plan rules as well.

Saving Changes

For any changes made to a seed plan to take effect, be sure to save the plan as a whole by clicking 'save plan' (not just 'save rules' or 'save changes' within a plan). This should take you back to the seed homepage.

Exiting a seed plan without saving the plan as a whole will result in the loss of any modifications made during that session.

