

A man and a woman are sitting at a desk, looking at a computer monitor. The woman is on the left, wearing a light blue shirt, and the man is on the right, wearing a plaid shirt. They are both looking at the screen with interest. A desk lamp is visible on the right side of the desk.

Variable Rate Sowing tool

The new digital tool from KWS defines the ideal planting density for corn on the basis of specific field conditions, using satellite images and knowledge of the breeder

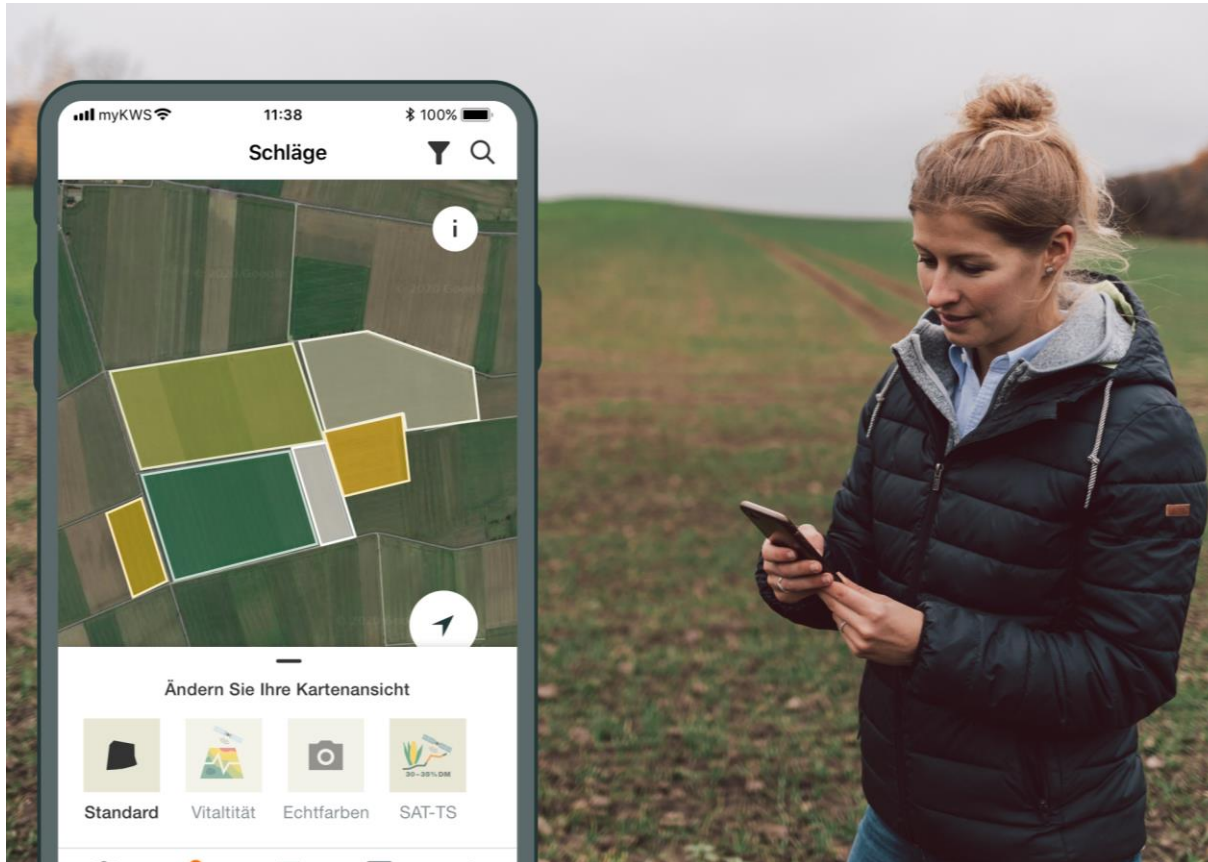
Version | May 2020

SEEDING
THE FUTURE
SINCE 1856



Variable rate sowing

What can you find in this manual?



1

General Information

General explanation on the tool - Full registration for the tool - myKWS Registration

2

Activation of your hectares

A KWS representative will get in contact with you and give you a Boucher for a certain amount of hectares.

3

Customize your Field

How to create a field and specify certain parameters so the tool can work properly

4

How to use the tool

How to export the sowing map in order to be able to use the tool

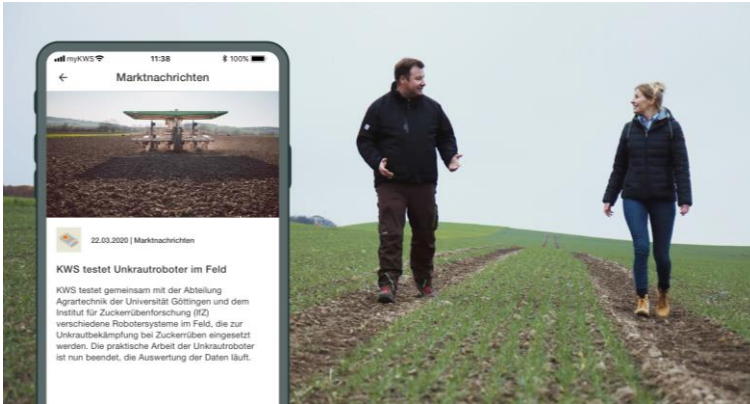
5

What to expect after

After you have the map and finish the process, what to expect from it?

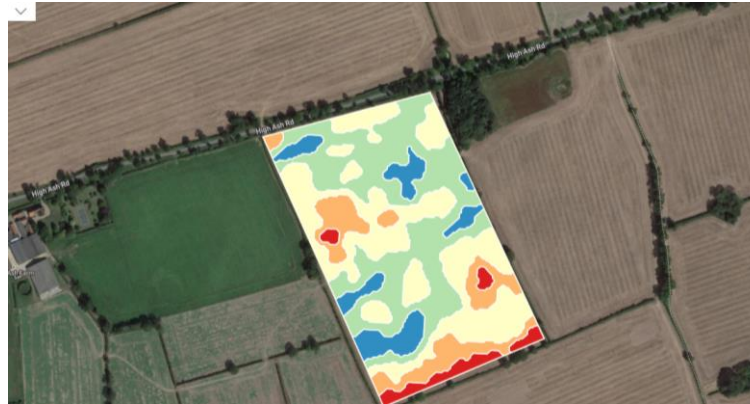
1. General Information

We augment the objective data with empirical values and knowledge about varieties



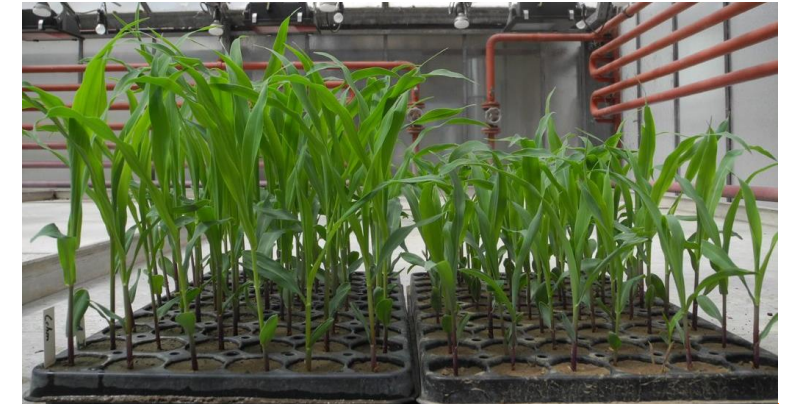
How we do it?

- The production potential of agricultural land can be estimated on the basis of satellite images recorded over several years and this data is then transformed into maps for sowing.
- “Using our digital tool means single-seed corn planters can be programmed so they select a greater planting density for ideal soil conditions and then be adjusted if the soil is less than optimum”



How do we read the information?

- The Bluer or greener the shade the higher the yield capacity, in these areas the seeding intensity needs to be increased in order to achieve the full yield potential
- The redder the map, the lower the yield potential of the plot, and the sowing needs to be done in lower intensity in order to achieve top performance
- Blue > green > yellow > orange > red



Benefits

Reducing seed density can reduce competition between individual plants under conditions of poor water and/or nutrient supply.

In this way, plants can achieve good growth and reach their maximum production potential even under less favorable conditions.

Optimize your seed rate for corn



- 1 Create your **myKWS** account and **mark** your acreage



- 2 The satellites gather **images** of your fields

growth
conditions



less good

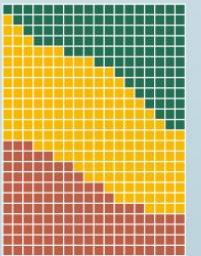
good

optimal

- 3 We continuously **analyze the data** and we recommend you the optimal seed rate across your acreage

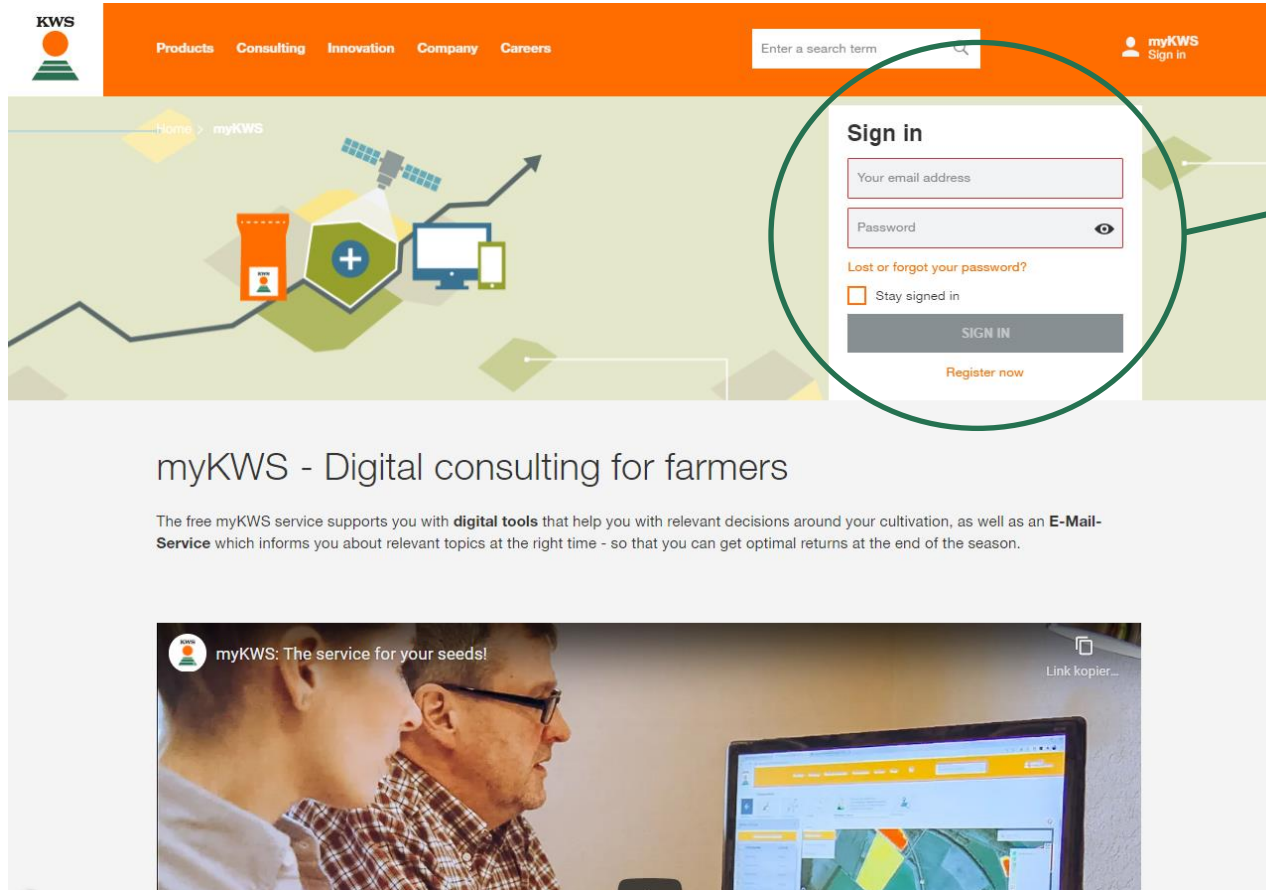


- 4 You **transmit the optimized seed rate map** to the sowing machine



1. General information

myKWS registration



Where to register

- To use our map-based services, you need a registered myKWS account.
- You can login on myKWS by visiting our KWS-webpage:
<https://www.kws.com/gb/en/mykws/>
and entering your username and your password.
- If you are new on myKWS, please register with your name, your email address and create a new password.

1. General Information

Full registration for the VRS tool



- ✓ To use the VRS tool a full registration is needed, we need this information in order to make the tool work, so we ask you to fill in the information carefully
- ✓ In the main landing page, you will find a link to the full registration



Personal data

Region

To give relevant information

Crops of interest

To give relevant information

Specific data

For Variable rate sowing tool

The screenshot shows the 'Bespлатno se registrujte na myKWS' (Register for free on myKWS) page. The page is divided into several sections, each with a corresponding arrow pointing to a label on the left:

- Personal data:** Points to the 'Prvo napravite svoj račun' (First create your account) section, which includes fields for 'Ime' (Name), 'Prezime' (Surname), 'E-mail adresa' (Email address), and 'Povežite svoju adresu e-pošte' (Link your email address).
- Region:** Points to the 'Unesite svoj poštanski broj za regionalne usluge' (Enter your postal code for regional services) section, which includes a field for 'Poštanski broj' (Postal code) and a map of Croatia.
- Crops of interest:** Points to the 'Odaberite svoje kulture da biste dobili odgovarajući sadržaj i informacije' (Select your crops to get relevant content and information) section, which includes a dropdown menu for 'Odaberite usjevu' (Select crop).
- Specific data:** Points to the 'Potvrdite svoj nalog i pristupite našim vrhunskim alatima.' (Confirm your account and access our premium tools.) section, which includes fields for 'Područje' (Region), 'Ime' (Name), 'Prezime' (Surname), 'Kompanija' (Company), 'Ulica i kućni broj' (Street and house number), 'Poštanski broj' (Postal code), 'Ime' (Name), 'Prezime' (Surname), 'Olasno' (Lastname), 'Ime' (Name), 'Prezime' (Surname), 'Olasno' (Lastname), and 'Ime' (Name).

2. Upload proof of seed purchase



Maize —

Start page Maize Seed Service Field Vitality Check **Variable Rate Seed Calculator** Heat Unit Tool Soil Temperature Tool Damage Symptom ... Seed Requirement

My fields >

You may add a field(s) with a total area of: 122.02 ha

EXPORT PRESCRIPTION MAP

+ CREATE NEW FIELD

	FIELD NAME	AREA
<input type="checkbox"/>	Plusterwine Farm	5.78 ha
<input checked="" type="checkbox"/>	VRS UK 1	11.85 ha

Map Activation

None

Place, Post code

High Ash Rd

Once you are registered and logged in, you find yourself on your personal myKWS page with various information

Therefore, click on:

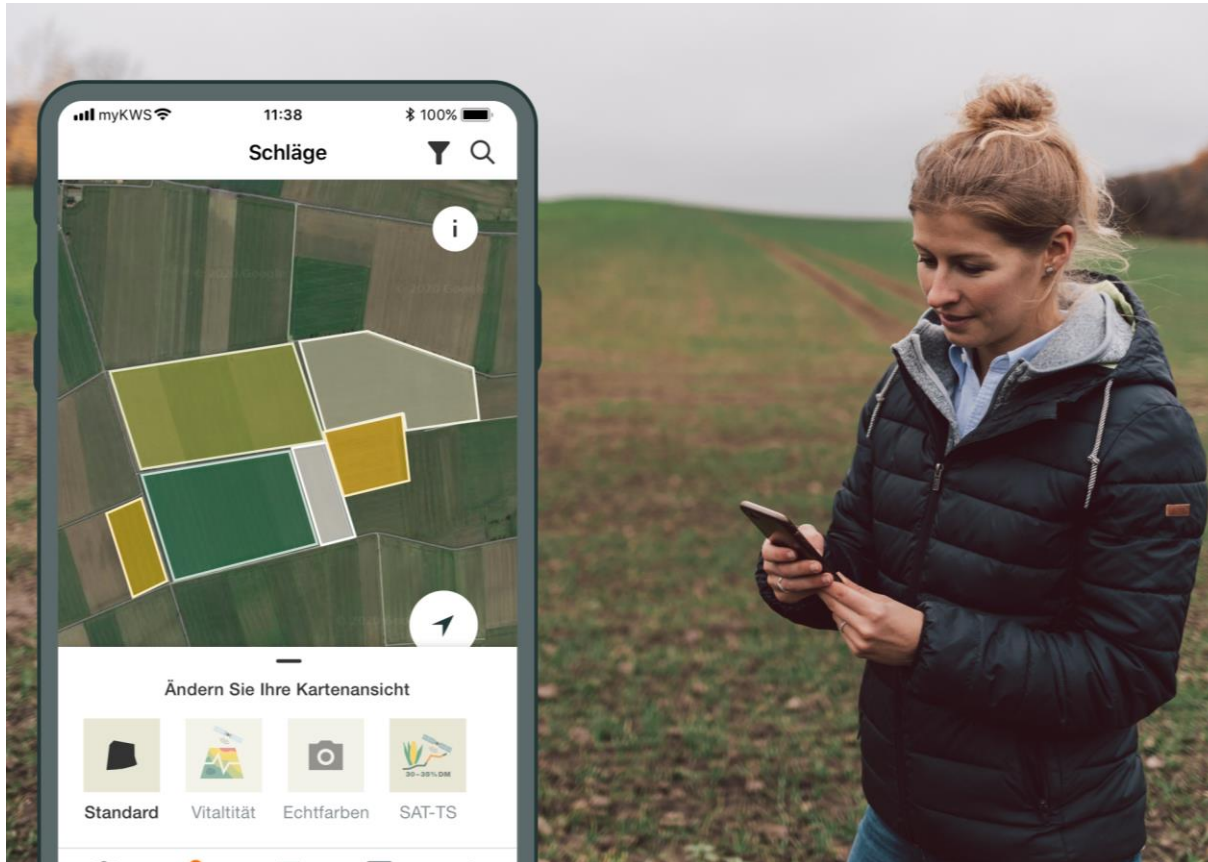
1. Variable rate sowing icon, making sure you selected “Maize” as a crop

To use the tool, you need a voucher number (6 digits) given to you by KWS

2. To activate your voucher number please click on “Activation”

Variable rate sowing

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2. Activation of your hectares





ProductsConsultingInnovationCompanyCareers

Enter a search term

myKWS
KWS Tutor

Maize

Start page

Maize Seed Service

Field Vitality Check

Variable Rate Seed Calculator

Heat Unit Tool

Soil Temperature Tool

Damage Symptom ...

Seed

My fields

You may add a field(s) with a total area of:122.02 ha

EXPORT PRESCRIPTION MAP

+ CREATE NEW FIELD

FIELD NAME	AREA
Plusterwine Farm	5.78 ha

Map

Activation

Activate field quota

You can activate an area quota for VRS, by redeeming your vouchers and providing the corresponding information about the purchased

YOUR QUOTA FOR 2021:

ADD ADDITIONAL QUOTA

Activation of fields for variable rate sowing

1. Activation

2. Summary

Do you have a voucher code for variable rate sowing?

VOUCHER CODE

570432 (10 ha)

Voucher code

ACTIVATED AREA

Please active a valid voucher code

ACTIVATE

To activate the hectares your sales representative will give you follow the next steps

1. Click on the grey button to type in your voucher code number
2. Type in your voucher code number and click “Activate”
3. The voucher code number shows, how much hectares are activated

2. Activation of your hectares



Activation of fields for variable rate sowing



✓ 1. Activation

2. Summary

Summary

Here you can see an overview of your activated quota (ha) for VRS, for the current season.

SOURCE	ACTIVATED AREA
Vouchers	10 ha
TOTAL	10 ha

After completing this process, you will be able to add your fields to the variable rate sowing tool. The total area of fields permitted, will be dictated by the amount of quota you have available.

Maize —

Start page Maize Seed Service Field Vitality Check Variable Rate Seed Calculator Heat Unit Tool Soil Temperature Tool Damage Symptom ... Seed Requirement

My fields

You may add a field(s) with a total area of: 132.02 ha

EXPORT PRESCRIPTION MAP

CREATE NEW FIELD

FIELD NAME	AREA (ha)
<input type="checkbox"/> Plusterwine Farm	5.78 ha
<input checked="" type="checkbox"/> VRS UK 1	11.85 ha

CANCEL

Please press “Next” and you will see a summary of your activated acreage.

1. To finish with your Activation process, please click in “**Finish**”

You will come back to the main view

2. Now you can create a field by clicking on the orange button “**Create New Field**”

BACK

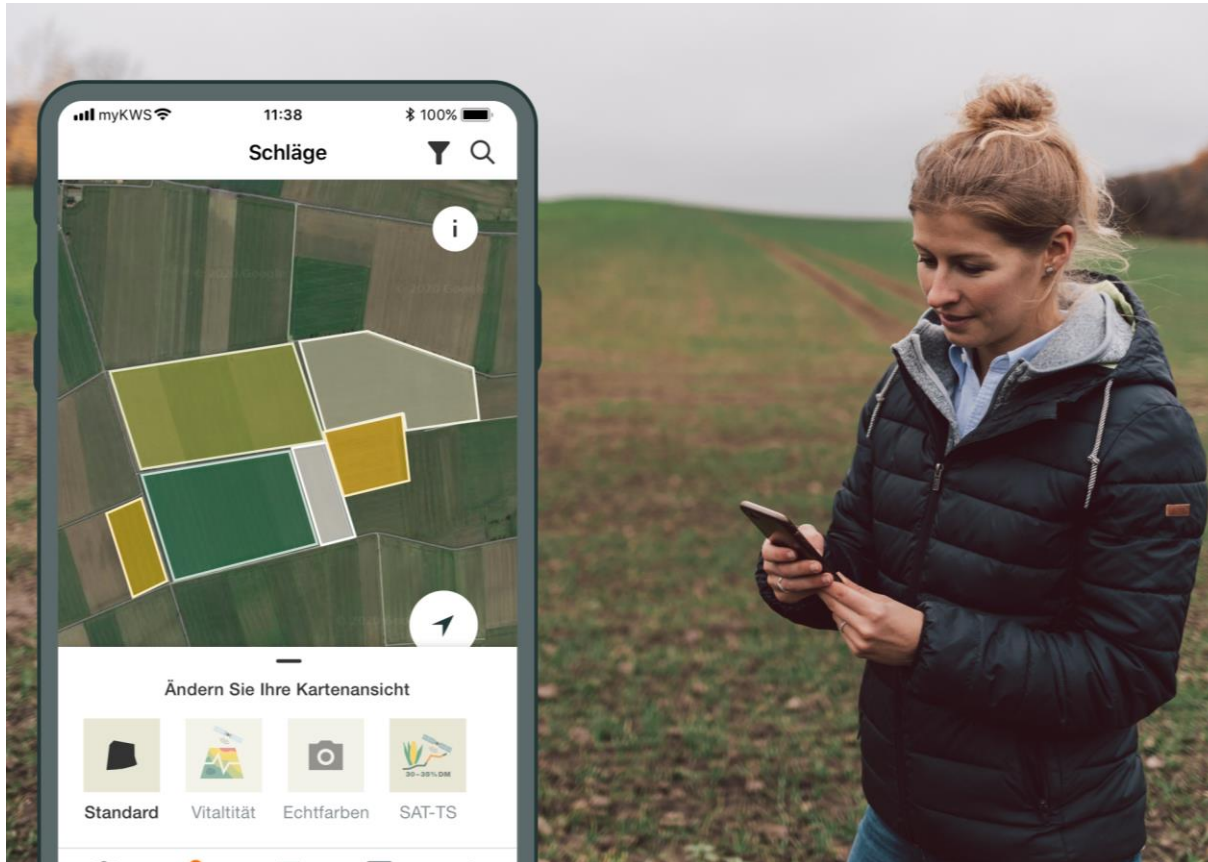
FINISH

1

2

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3. Customize your Field- Method



Add field

KWS


my KWS

1. Method

2. Add field

3. Sowing details


To add your fields, please select one of the following methods.



Drawing

Draw your field boundary on the map.


1



Import

Import Shape or KML files

2



Field Management

Select field from Field Manager.

3

CANCEL

To add a new field there are three different methods

1. Drawing:

Using this method you can draw your fields on a map.

2. Import:

Upload your fields as a shape or KML file. With this method you can for example import your fields from your field catalogue.

3. Fieldmanagement:

Using this function you can import fields that were already created in another tool or in a previous year.

3. Customize your Field– Add field

The screenshot shows the 'Add field' interface. At the top, there's an orange header with 'Add field' and the KWS logo. Below the header, there are three tabs: '1. Method' (checked), '2. Add field' (active), and '3. Sowing details'. The main area is titled 'Draw in field boundary'. It features a map with a green field boundary being drawn. A search bar at the top right of the map area is labeled '1'. A green circle with the number '2' is placed over the field boundary. A green circle with the number '3' is placed over the 'Field name' input field. A green circle with the number '4' is placed over the 'Area (automatically calculated)' field. The 'Field details' section on the right contains the 'Field name' and 'Area' fields, along with instructions: 'Start by clicking on any field corner and proceed by clicking along the field boundary. To end the drawing process please click once on the start point.' and 'Click on the newly created field boundary to make adjustments where necessary.' At the bottom, there are 'CANCEL' and 'NEXT' buttons.

1. Find your location:

Use the search function to find your location. You can grab and move the map, also is possible to zoom by using the mouse-wheel or the +- buttons

2. Draw your field:

Draw in a field by clicking on one corner after another, with a double click you can finish drawing.

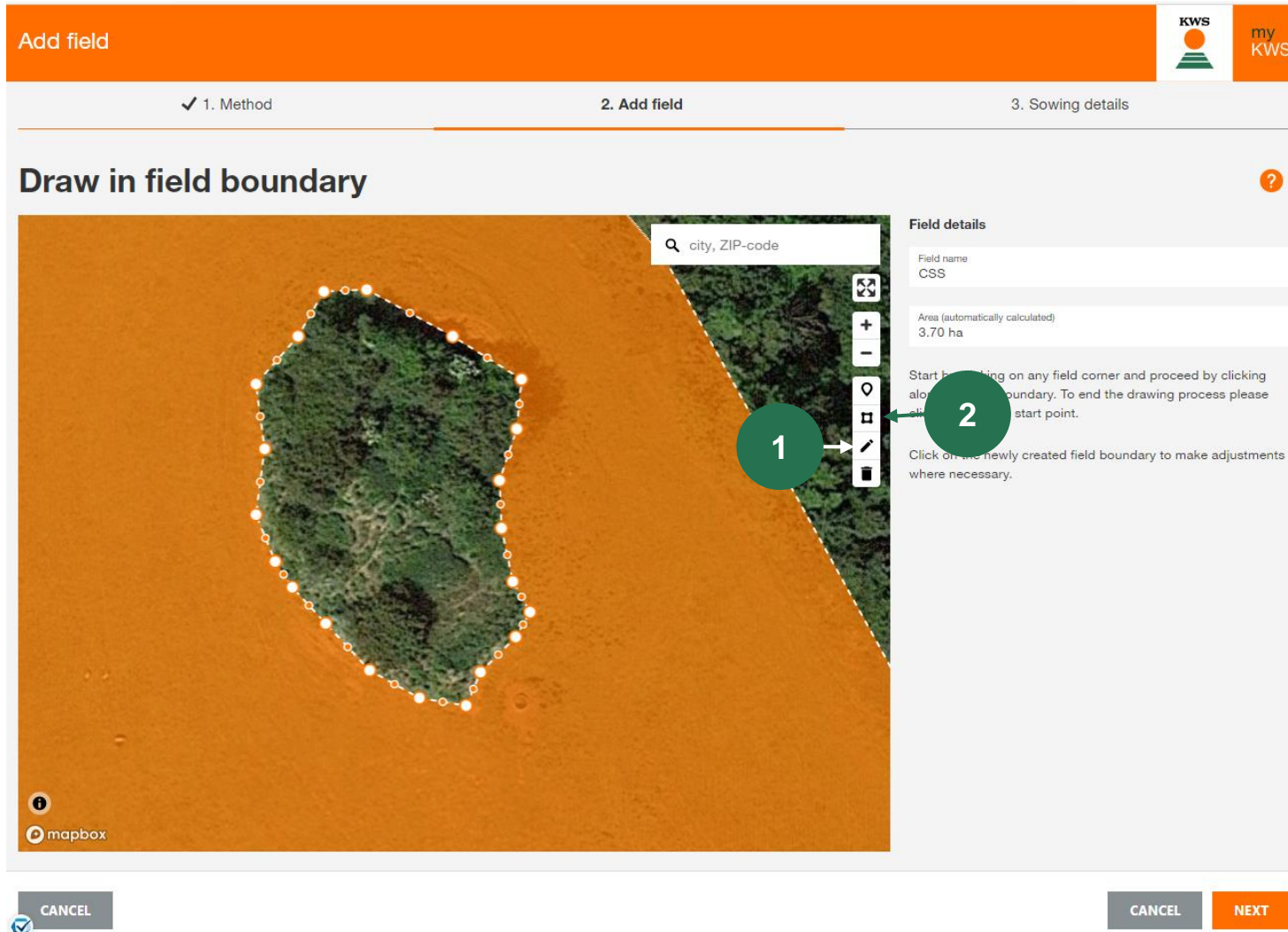
3. Name your field:

Please enter a name of the field afterwards, this will allow you to find it easily in all our tools

4. Field Size:

The field size is calculated automatically.

3. Customize your Field - Add field



1. Change and edit field boundaries

With a click on the pencil symbol, you can move and adjust all border points.

2. Include field elements inside the plot

You can also include field elements such as groups of trees within the field when drawing.

Therefore, click on the square symbol, then you can mark and draw the borders of the field element by left-clicking

3. Customize your Field - Import



1. Use the import functionality.

Here you can import fields from InVeKos- data or from your field catalogue. We support shape- and KML file formats.

Click on Import and select the wanted file on your local computer.

Please keep in mind that a complete shape-file consists of a minimum of 3 individual files

2. Select the fields you want to import

A selection table will then open, here you can see all fields from the Shape file

Select with a check in the first coloumn the fields you want to import to the Corn Seed Service, in some cases, it might be necessary to add the name to a field.

If a field from the list already exists, we will show the amount of overlap. A further import is not possible.

GEOMETRY	FIELD NAME	AREA
	Dreieck	2.67 ha
	Fluthe	5.72 ha
	Untere Wiernark	12.08 ha


3. Customize your Field - Fieldmanagement





2. Add field

3.

ds, please select one of the following methods.

**Drawing**
Draw your field boundary on the map.

**Import**
Import Shape or KML files

**Field Management**
Select field from Field Manager.

1

Add field

KWS

DIY KWS

✓ 1. Method




2. Add field

3. Sowing details

Add fields from field management.

You are able to select from 4 fields.
Please select the fields you wish to import.

0 from 4 fields are selected.

<input type="checkbox"/>	GEOMETRY	FIELD NAME	AREA
<input type="checkbox"/>		Outer farne	1.76 ha
<input type="checkbox"/>		Plustewine Farm	5.78 ha
<input type="checkbox"/>		VRS UK 1	11.85 ha

CANCEL

CANCEL

NEXT

1. Import your fields with the Field management

You will get the same view as during Import

In the Fieldmanagement you can see al fields you created already in previous years or in another tool.

2. Select Fields

Please select all fields you want to import with a check in the first coloumn.

3. Customize your Field – Sowing details



Add field

✓ 1. Method ✓ 2. Add field **3. Sowing details** 4. Choose years for analysis

Sowing details

Please add all information to your sowing. These information are necessary to give you a variety specific sowing recommendation for your field.

FIELD NAME	VARIETY	USE	SOIL TYPE	IRRIGATED	FAO	SOWING DENSITY
VRS	<div>Not specified Please select a variety</div> <div>AMAROC AMBROSINI AUGUSTUS KWS AURELIUS KWS AUTENS KWS</div>		<div>Please choose a soil type.</div>	<div>Please select, whether your field is irrigated.</div>		

CANCEL BACK FINISH

Here you can see the field that we already created

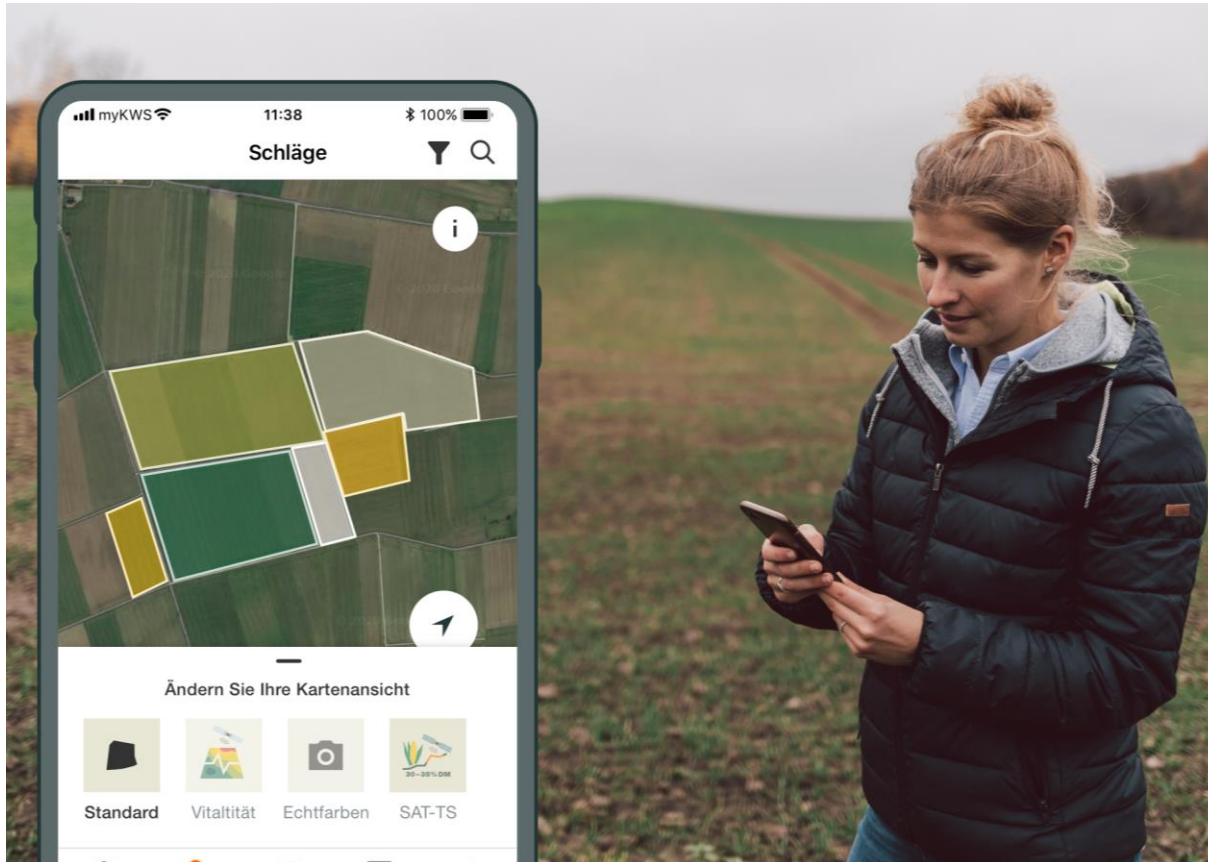
1. Add the **name of the variety** that you will sow, the added value we give, is that we calibrate the tool from a deep knowledge of the variety
2. Add The Soil type (Sand /Loam /Clay)
3. Specify If is irrigated (No / Yes / Maybe)

After this you click “Next”, and the program will automatically go to

4. **“Choose years of analysis”**, More years are selected, more accurate the tool projections, therefore you are not allowed to deselect more than 2 years and we present the last 5 years

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After you have the map and finish the process, what to expect from it?

4. How to use the tool – Display options



The screenshot shows the KWS Maize tool interface. The top navigation bar includes links for Products, Consulting, Innovation, Company, and Careers, along with a search bar and a user profile icon labeled 'myKWS KWS Tutoria'. The main content area is titled 'Maize' and features several tool icons: Start page, Maize Seed Service, Field Vitality Check, Variable Rate Seed Calculator (highlighted), Heat Unit Tool, Soil Temperature Tool, Damage Symptom, and Seed R. The 'My fields' section on the left shows a table of fields with a total area of 124.79 ha. The table lists three fields: Plusterwine Farm (5.78 ha), VRS (7.23 ha), and VRS UK 1 (11.85 ha). The 'VRS UK 1' field is selected. The 'Map' section on the right shows an aerial image of a field with a yellow overlay. A green circle with the number 1 highlights the 'Aerial Image' option in the 'Map' dropdown menu.

	FIELD NAME	AREA
<input type="checkbox"/>	Plusterwine Farm	5.78 ha
<input type="checkbox"/>	VRS	7.23 ha
<input checked="" type="checkbox"/>	VRS UK 1	11.85 ha

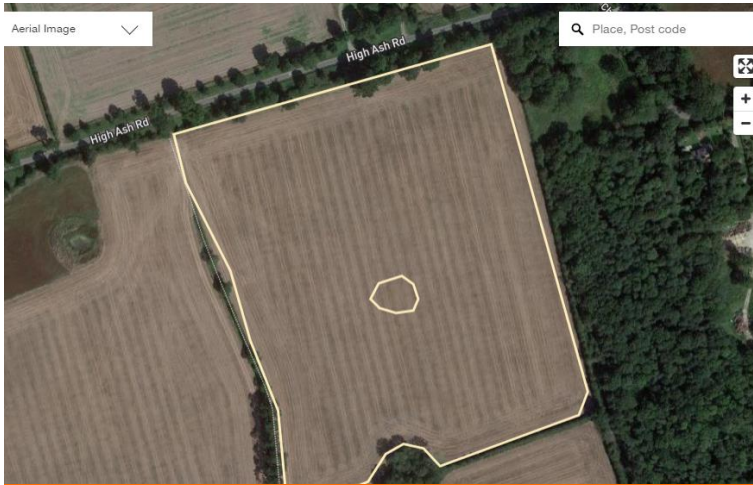
You are getting back to the initial view, now with your field drawn in

1. The **drop-down menu** gives you some display options:

- ✓ Aerial Image: satellite photo
- ✓ Classification of the field
- ✓ Different zones of the field

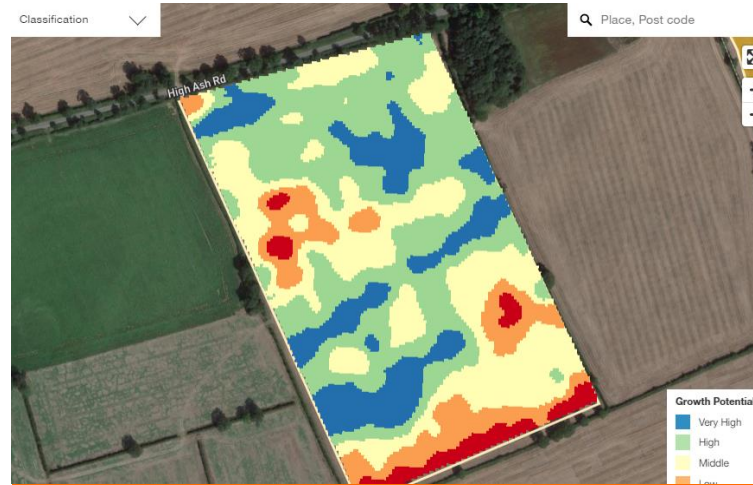
Note: The processing of the classification and zones takes from 30 mins up to a few hours!

4. How to use the tool – Display option



Satellite Photo

The satellite photo shows the normal image the farmer is used to when he is using google maps and comparable services. This view can be used to check if the field boundaries are correct



Classification

The classification map shows the results of the satellites analysis of growth potential. Blue and green areas have shown bigger growth potential over the years of analysis and orange and red areas have always shown less good growth conditions. This map cannot be changed.



Zones

The zoning map shows the different zones for sowing. Every color is a different sowing density. These zones result out of the classification map and can be adjusted and adapted to the farmers needs. This is described in the next steps.

4. How to use the tool – Edit zones



Variable Rate Seed Calculator

Heat Unit Tool

Soil Temperature Tool

Damage Symptom ...

Seed Requirement

Map

Activation

None

Place, Post code

VRS UK 1 (11.85 ha)

AMAROC

Zones 24

Ø Density Plants/m² 9

Calculation of management ...

Completed

EDIT FIELD

DELETE FIELD

EDIT ZONES

KWS

Products Consulting Innovation Company Careers

Enter a search term

myKWS KWS Tutorial

Maize

Start page

Maize

Crop Manager

Field Scout

Maize Seed Service

Field Vitality Check

Variable Rate Seed Calculator

Heat Unit Tool

Back to field management

Edit field zones „VRS UK 1”

Zones

Max. Classes 3

DELETE ZONES

SAVE ZONES

DENSITY	SOWING DENSITY	TOTAL AREA [HA]
Low	8	1.34
Middle	9	6.6
High	9	3.92
	Ø 8.89	11.85

% of area

Low

Average

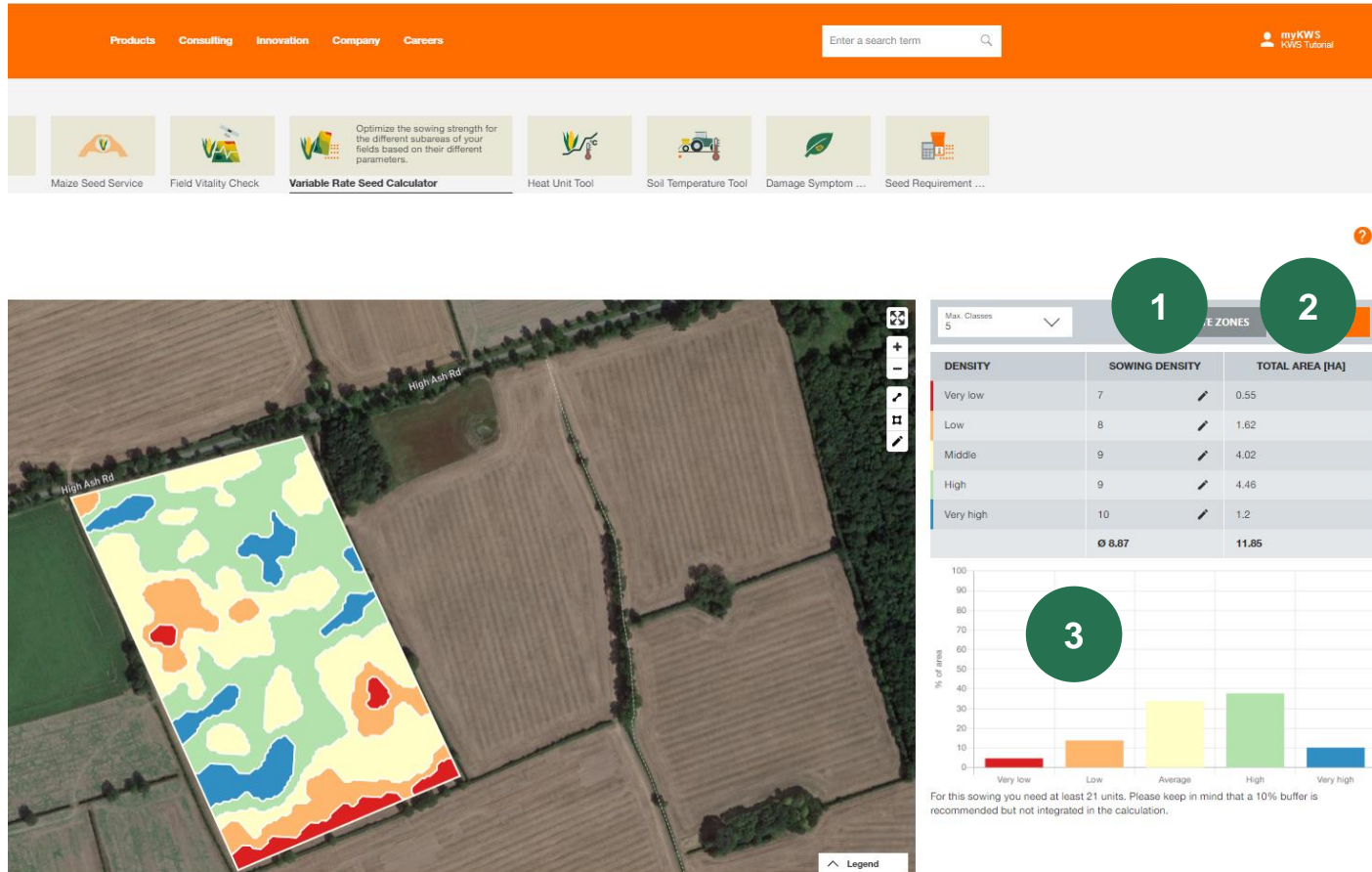
High

Coming Back to the main view we can tell the tool how many zones we want to work with

More zones will be more specific but more complicated to apply

1. By **clicking on the field**, you see an overview of the drawn field (e.g., variety, amount of hectares...) and you can edit the different zones of the field by in **“Edit zones”**
2. In the zone editing mode you can choose via drop down menu the number of different zones on your field – according to your knowledge and experience on this field
3. At the end don't forget to **“Save”** your edited zones

4. How to use the tool – Last adjustments



According to the chosen number of zones, you can find various information regarding your field

1. **“Sowing Density”**: This column shows our recommended sowing rate for each zone. You can adjust this according to your needs with the pencil in the right side
2. **“Total area”** shows the total size of the zones
3. The graph shows the percentage area distribution of the density zones

4. How to use the tool – Download map



The screenshot shows the KWS Maize tool interface. On the left, a table titled 'My fields' lists three fields: Plusterwine Farm (5.78 ha), VRS (7.23 ha), and VRS UK 1 (11.85 ha). The 'VRS UK 1' field is selected with a checkbox. A green circle with the number '1' points to this checkbox. In the center, a map shows a field with a color-coded sowing map overlay. A green circle with the number '2' points to the 'EXPORT PRESCRIPTION MAP' button. On the right, a dialog box titled 'Export your sowing data' is open, showing a list of terminals: Atlas, Amalzone, Benardini, CASE, and CCI. The 'Atlas' terminal is selected. A green circle with the number '3' points to this terminal.

FIELD NAME	AREA
<input type="checkbox"/> Plusterwine Farm	5.78 ha
<input type="checkbox"/> VRS	7.23 ha
<input checked="" type="checkbox"/> VRS UK 1	11.85 ha

Export your sowing data

Please first select the terminal you are using, then you can start the download.

- Atlas
- Amalzone
- Benardini
- CASE
- CCI

We are now ready to download the map, for this you have to follow the next steps:

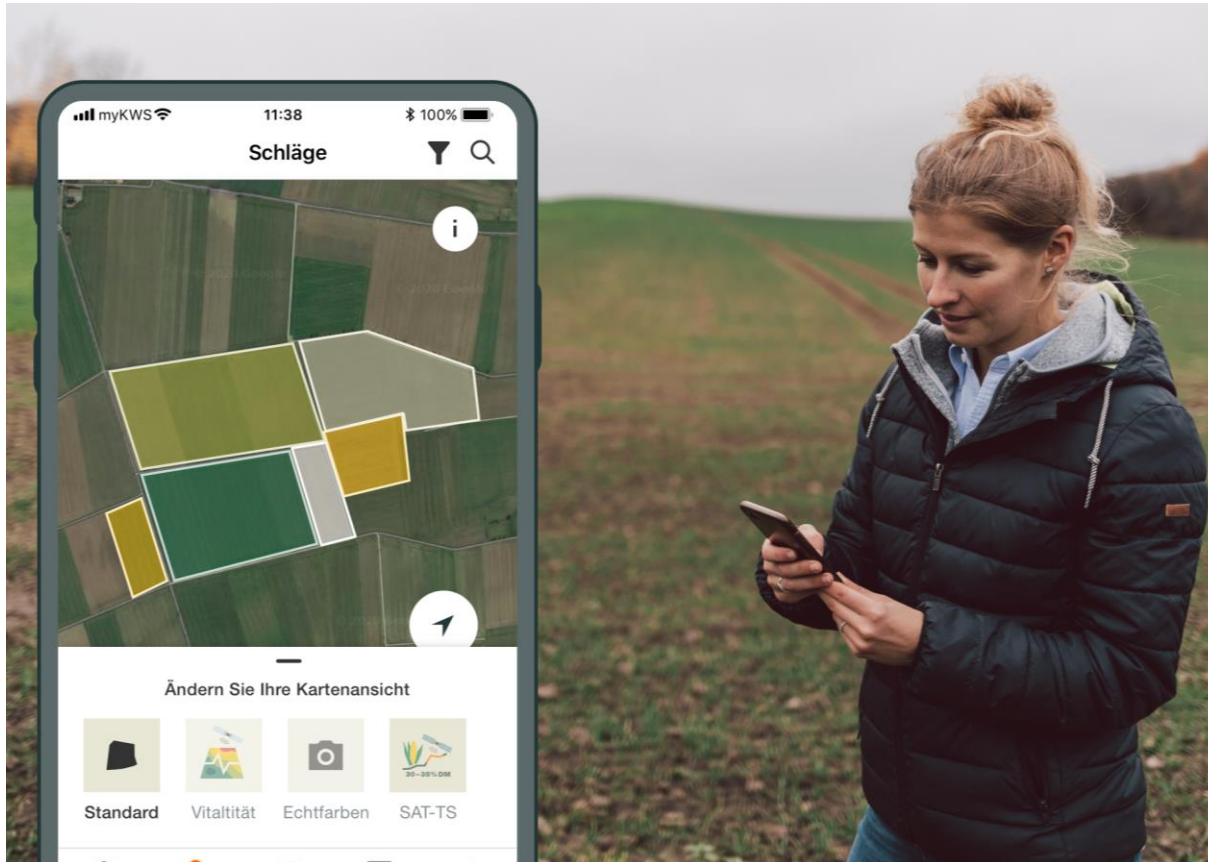
1. “ **Select fields** ” you want to download
2. Click “**Export your sowing map**”, in the right side of the screen

A new window will appear with the title “Export your sowing data”, from here you must select the right terminal

3. Click “ **Start Download** ” and you will be ready to have your sowing map

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What happens next?

After downloading the sowing map for the correct terminal, you should store the file on a flash drive. With this flash drive you can import the sowing plan on the terminal. To start the sowing job on the terminal please follow the terminal specific instructions.

QUESTIONS OR SUGGESTIONS?



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