RAINFOREST ALLIANCE GUIDANCE:

QGIS GUIDANCE ON CONVERTING AND MANAGING GEOSPATIAL FILES

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RAINFOREST ALLIANCE

The Rainforest Alliance is creating a more sustainable world by using social and market forces to protect nature and improve the lives of farmers and forest communities.

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Guidance documents are non-binding. Guidance documents provide information to help readers understand, interpret, and implement the standard requirements, however, following the guidance in this document is not mandatory.

More information

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INTRODUCTION

1. What is QGIS

QGIS is an open source, user-friendly and professional GIS application licensed under the GNU General Public License. It runs on Linux, Unix, Max OSX, Windows and Android and supports numerous vectors, raster, and database formats and functionalities.
You can download QGIS at: https://qgis.org/en/site/forusers/download.html.

Please watch this tutorial video which provides more information on the installation of QGIS.

This document will provide guidance on how to use QGIS tool to:

1) Convert a file containing geospatial data (e.g., shapefiles) to KML or GeoJSON, so this file complies with the standard and can be submitted in the RACP.
2) Provide a unique farm unit ID to polygons in a systematic way.

The first section shows how to start a general QGIS project and how to add a layer. In the second section, you can see how to convert any layer to a KML or GeoJSON format.
The last section explains how to upload your polygon file and provide unique farm unit IDs correctly to each polygon.

Please note:

1) QGIS 3.26.0 Bonn for Windows 10 was used to create this guidance document.
2) When converting geodata select "Keyhole Markup Language [KML]" or "GeoJSON" as format
3) Ensure that *the Coordinate Reference System (CRS)* is set to *"EPSG:4316 – WGS 84"*.

1. ADDING LAYERS TO NEW QGIS PROJECT

To work in QGIS, including adding a layer (file), you must create and save a new project. To open a new project, click on **project → new** on the top left corner. A white and completely empty interface will appear. You can save the project in your preferred directory by clicking on **project → save as** (See Figure 1).

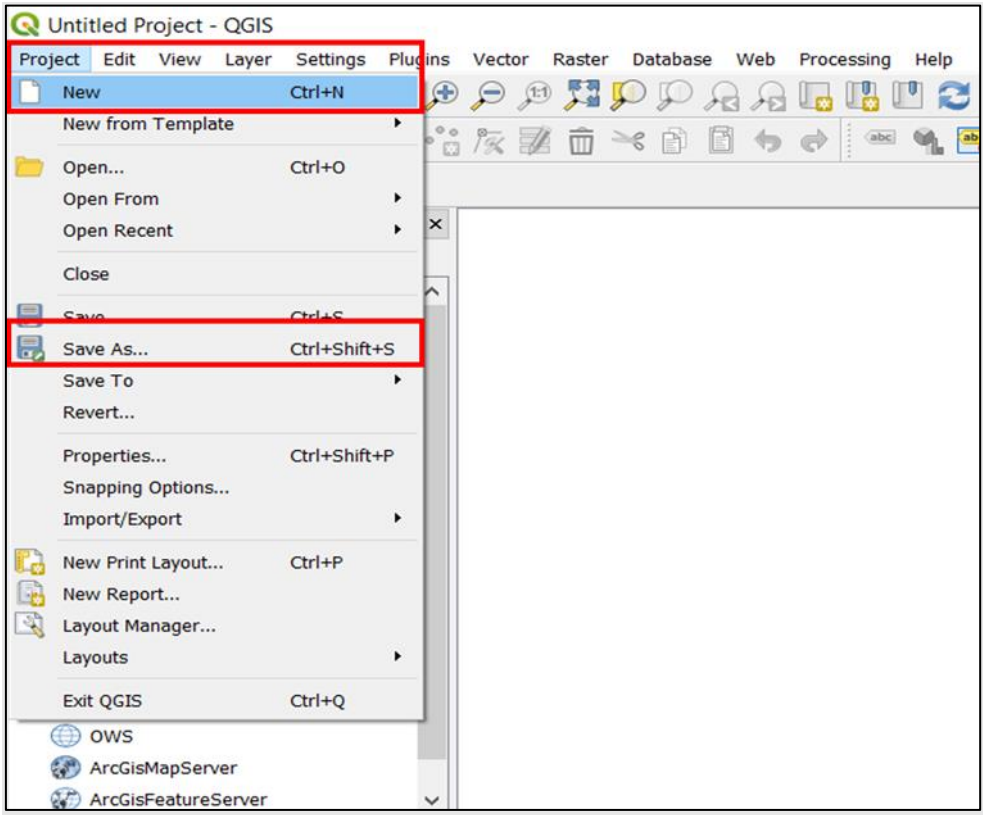

Figure 1. Create and save a new project in QGIS

To add a new layer to the project, click on **Layer → Add Layer → Add Vector layer.**

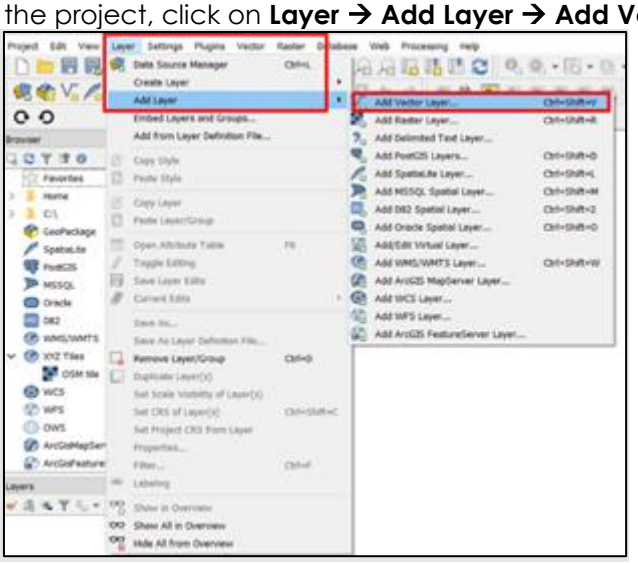

Figure 2. Adding new layer to the project

In general, you can add and then convert any supported QGIS file to the format that you need. Click here for more information about QGIS supported data formats.

This guidance used a shapefile as an example.

The "Data Source Manager" window will appear. From the source settings, be sure to select the right extension of the file you are working on (e.g.: ".shp" for shapefiles). Once the layer is selected, click the **add** button.

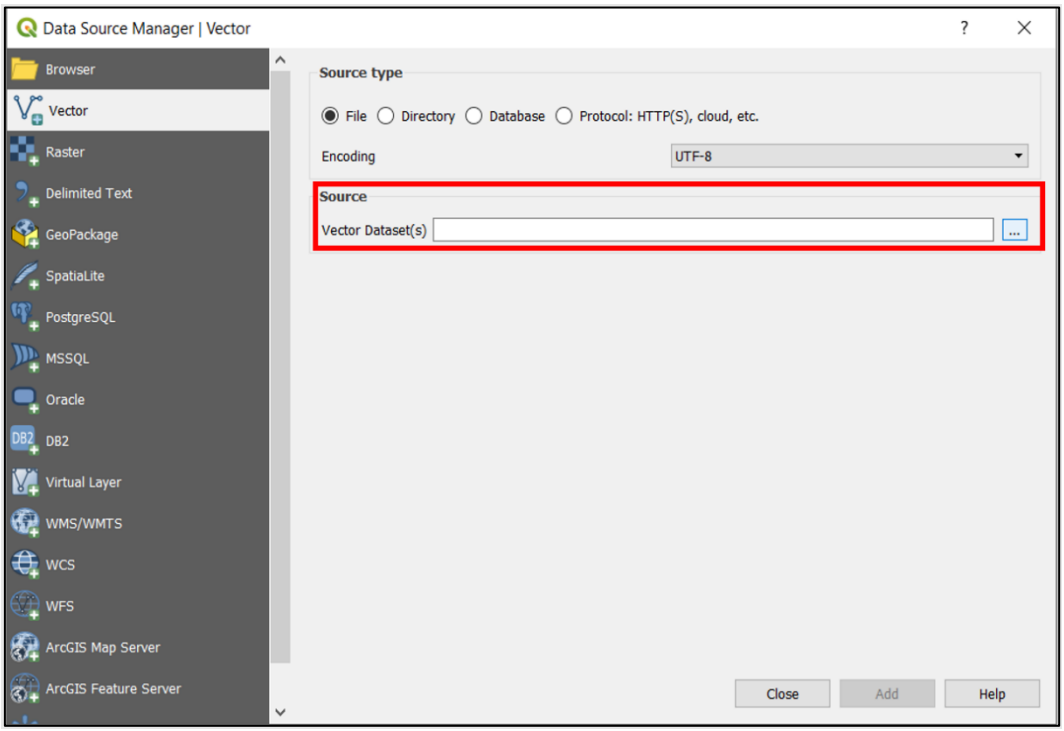

Figure 3. QGIS Data Source Manager window used to upload files

2. CONVERT ANY LAYER ANOTHER FORMAT

You can convert many supported formats to any other support format using the steps below. In this section, we take the example of how to convert a file to a KML feature but it is also possible to convert it to any other format in the **format** list seen in Figure 5.
Once the layer is added, you will see it under the **Layers list.** To convert the file, right click on **Layer list → Export → Save Feature As.**

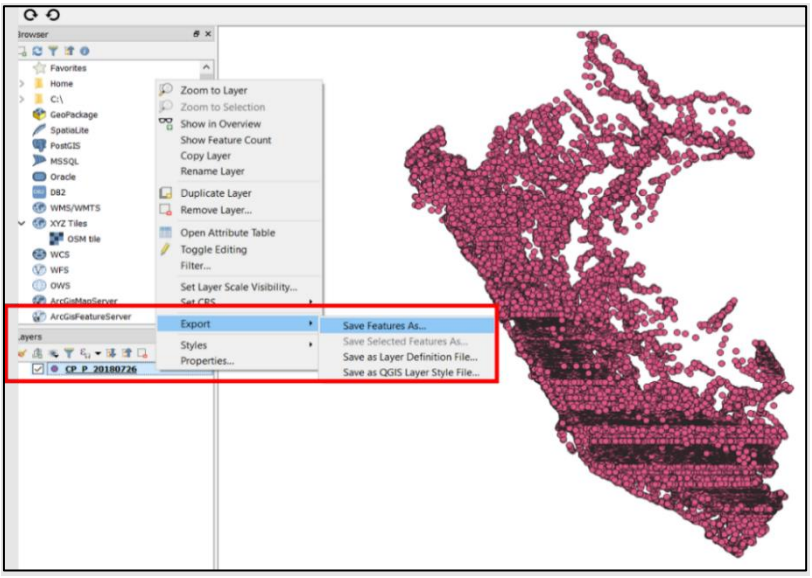

Figure 4. Convert layer in another format within QGIS

Once the previous step has been completed, the window **"Save Vector Layer as…"** will appear. From this window you can select the desired output format.

Please select **"Keyhole Markup Language [KML]" or "GeoJSON"** as **format**. This is the format that you are required to upload in the RACP. Choose **"ESRI Shapefile"** if you need to manage your file. For more information see section 3.

Ensure that **CRS** parameter is set to **"EPSG:4326 – WGS 84"** and that you select the desired directory of the output through **the three dots icon** in the **file name** item.

When all the previous steps are done, click **OK** and wait for QGIS to convert the file.

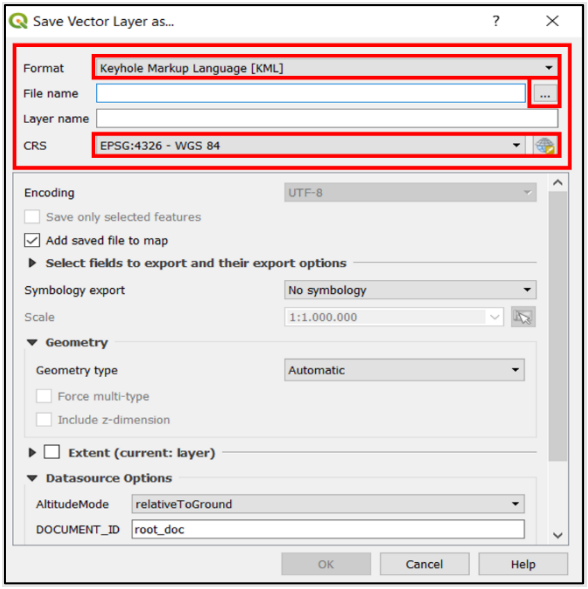

Figure 5. Setting input and output parameters for file conversion

3. MANAGING POLYGON DATA

When you have uploaded your polygon layer following the steps in section 1, the layer is open. If you uploaded a KML format, please convert the file to an **"ESRI Shapefile"** format as explained in the previous section. This will allow you to edit the file.

3.1. ASSIGN UNIQUE FARM UNIT IDS TO POLYGON FILE

Once you have converted the KML file into an ESRI Shapefile in your layer section, open the **attribute table** by right clicking on the layer's name (Shapefile_ExampleFarms) and choosing **open attribute table** (Figure 6). After opening the attribute table, you can modify the name stated in the **field calculator** (Figure 9), in the example below "Placemark". For this, you need to activate the **edit mode**. To activate the edit mode, click on the pencil at the top left of the attribute table (Figure 7).
You know the edit mode is activated when the icon of a pencil appears in your shapefile (Figure 8).

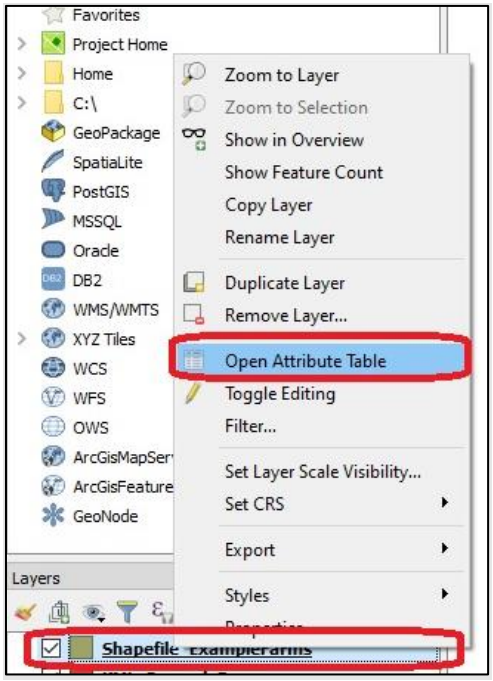

Figure 6. Open attribute table

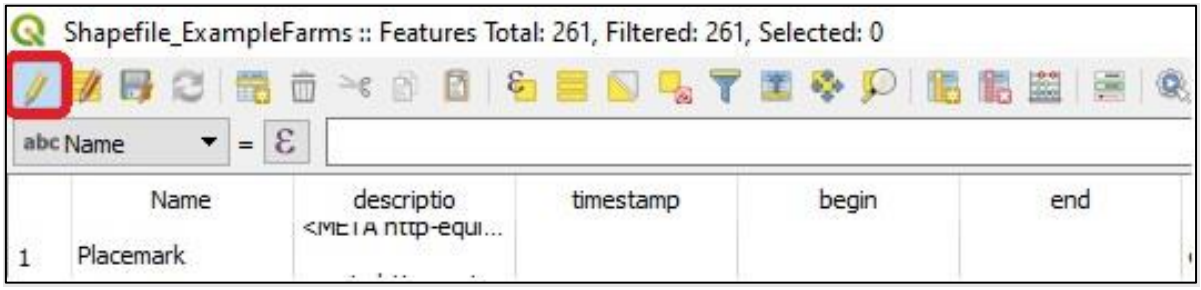

Figure 7. Edit mode activated in attribute table

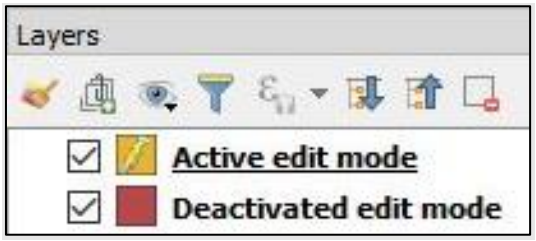

Figure 8. Pencil in active edit mode

As shown in Figure 9, column **Name** of the attribute table does not contain unique farm unit IDs, this is shown in box 1.

Next are 2 different options to assign unique farm unit IDs to each farm unit.
Option 1: Update existing field
Option 2: Create a new field "farmunitid" and populate this field.

Option 1 - Update existing field:

Use the field calculator to assign unique farm unit IDs to your polygons, by following these steps:

1. Check if your polygons have a unique ID → box 1 in Figure 9
2. Open **field calculator** (CTRL + i)→ box 2 in Figure 9
3. Select **Update existing field** → box 3 in Figure 9
4. Select the field **name** → box 4 in Figure 9
5. Type in the **Expression** box the following: **'text'** | | **@rownumber** → Box 5 in Figure 9)
    a. 'text' is 'FarmUnit' → 5a in Figure 9
    b. | | is the functionality between **"^"** and **"("** → 5b in Figure 9
    c. **@row_number** can be selected → 5c in Figure 9
    d. The expression in this example would be: **'FarmUnit'** | | **@rownumber**
6. When done, press **ok** at the bottom. → 6 in Figure 9
7. Save edits (Ctrl + s)

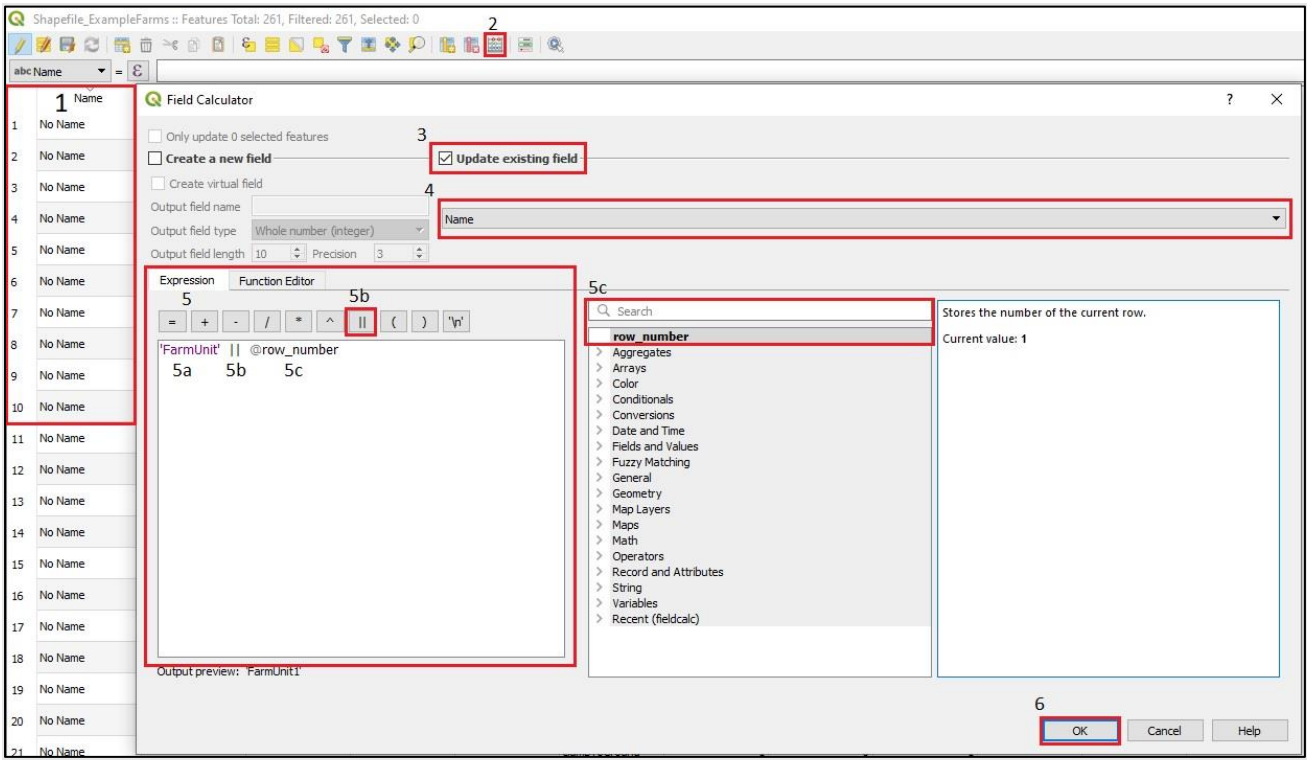

Figure 9. Update existing field - Field calculator

The layer can be exported and saved as a **KML** or **GeoJSON** file (see section 2).

Option 2 - Create a new field:

Use the field calculator to assign unique farm unit IDs to your polygons, by following these steps:

1. Check if your polygons have a unique ID → box 1 in Figure 10
2. Open **field calculator** (CTRL + i) and Select **Create new field**→ box 2 in Figure 10
3. Set output filed name as **farmunitid** → box 3 in Figure 10
4. Set output field type as **Text (string)** → box 4 in Figure 10
5. Set output on default → box 5 in Figure 10
6. Type in the **Expression** box the following: **'text'** | | **@rownumber** → Box 5 in Figure 9)
    a. 'text' is 'FarmUnit' → 5a in Figure 9
    b. | | is the functionality between **"^"** and **"("** → 5b in Figure 9
    c. **@row_number** can be selected → 5c in Figure 9
    d. The expression in this example would be: **'FarmUnit'** | | **@rownumber**
7. When done, press **ok** at the bottom. → 6 in Figure 10
8. Save edits (Ctrl + s)

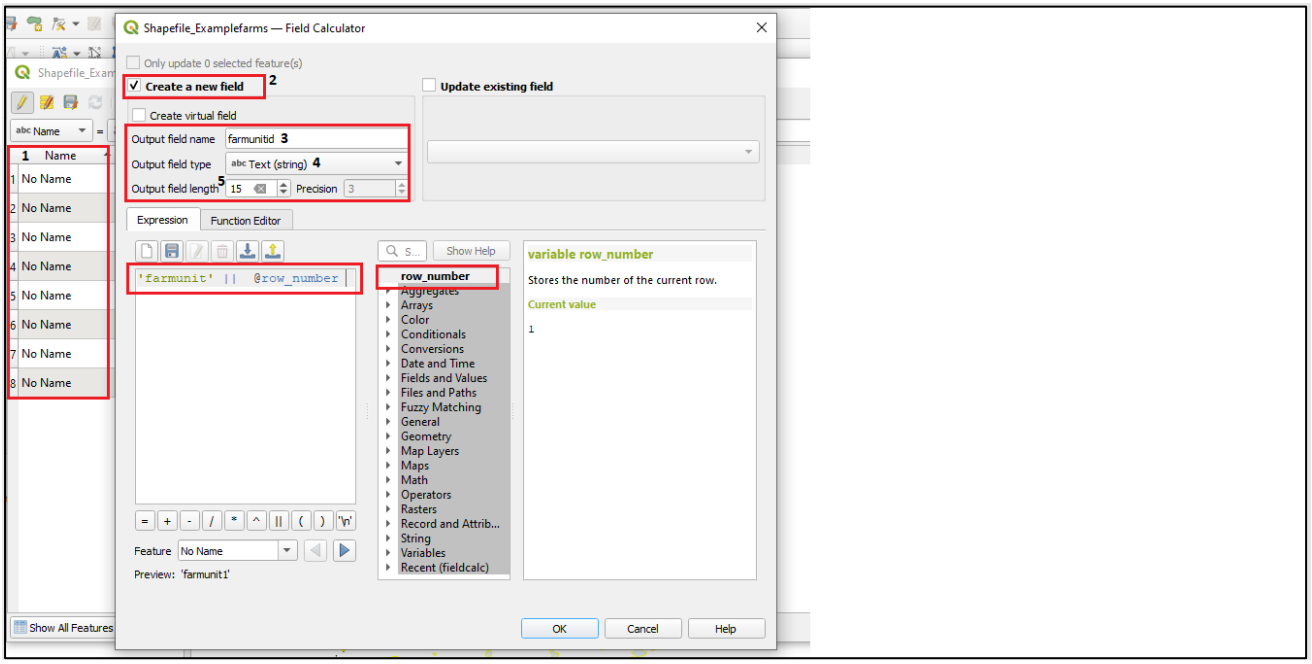

Figure 10. Create a new field – Field calculator

The layer can be exported and saved as a **KML** or **GeoJSON** file (see section 2).

3.2. COPY AND PASTE NEW FARM UNIT IDS TO GMR

This section explains how you can easily populate your GMR with the new and unique farm unit IDs created in the previous chapter 3.1.
First you need to convert the polygon file to a CSV file. To convert the file, right click on **Layer list → Export → Save Feature As** (shown in Figure 4).
Save the layer in the format **Comma Separated Value [CSV]** and store it in the by your selected location by pressing the box with dots in the right of the **File name** box. in this example "New_farmunitids_examplefile" is the name of the new CSV file (Figure 11)
When done Press **OK.**

note: *When the checkbox "Add saved file to map" left of the "OK" button is checked, QGIS will use the file. This can result in a "this file is already in use" warning message when opening the file in excel.*

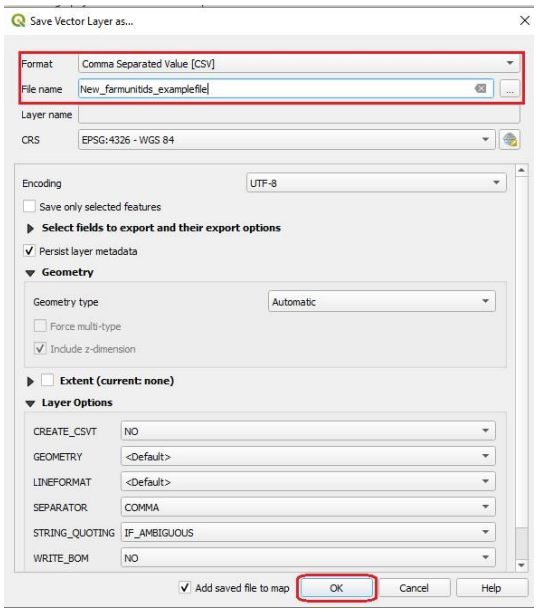

Figure 11. Save Vector Layer as .. CSV

When the excel file is open you can copy and paste the newly unique created farm unit IDs from the file to your GMR (Figure 12).

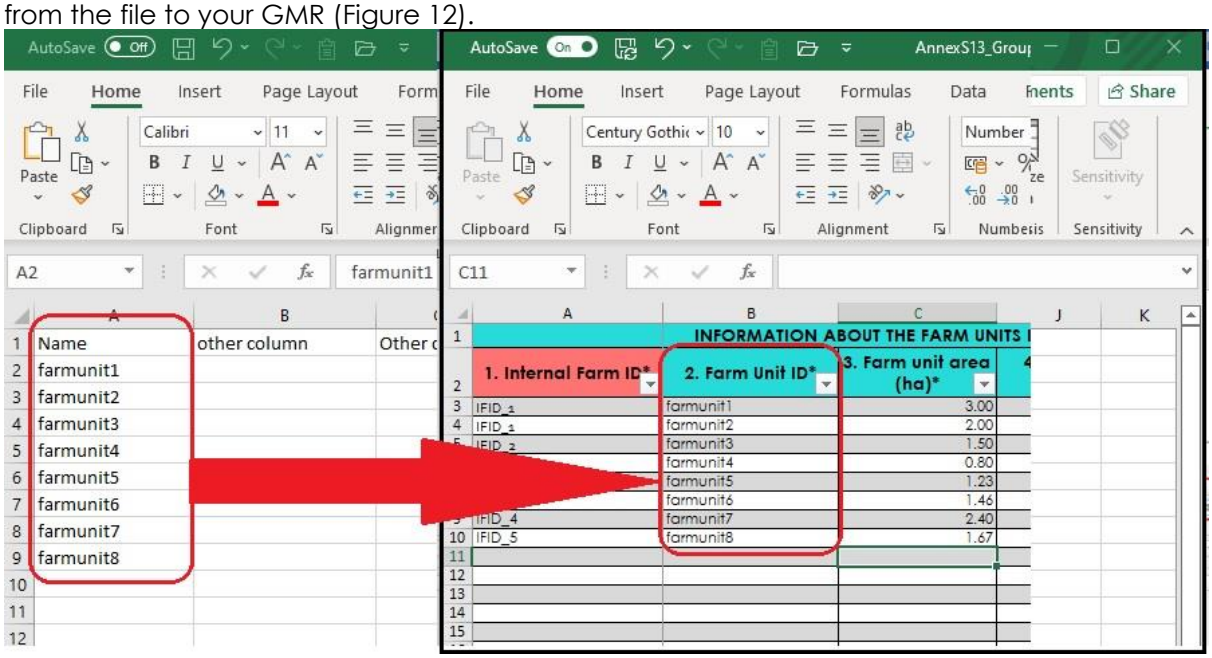

Figure 12. Copy Past Unique Farm unit IDs to GMR

3.3. MANAGING A MULTI-POLYGON FILE

If the file you provide in QGIS is a multi-polygon file with several groups (see Figure 13 below), you will need to manage each cluster according to section **Error! Reference source not found.** above. Be aware that the expression should be a bit different to make a distinction between the clusters.

The expression for each cluster should be:
'Cluster#_FarmUnit' || @rownumber
for Cluster1 this means: 'Cluster1_FarmUnit' || @rownumber

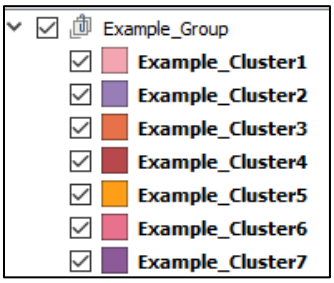

Figure 13. Uploaded KML files contains 7 clusters

Once this is completed each cluster has farm units with unique IDs. To upload the file in into the RACP, the 7 shapefiles from the example need to be merged together. The clusters can be merged by following these steps:

1. Via **Vector** in the toolbar → **Data Management Tools** → **Merge Vector Layers**
2. Click on the three dots on the right of "Input layers".
3. "Select all" cluster needed to be included and press "OK"
4. Ensure the destination CRS is **"EPSG:4326 – WGS 84".**
5. Select a location by clicking the three dots on the right of Destination CRS [optional] where the merged file must be stored as a .shp
6. Press "**Run in Background".**

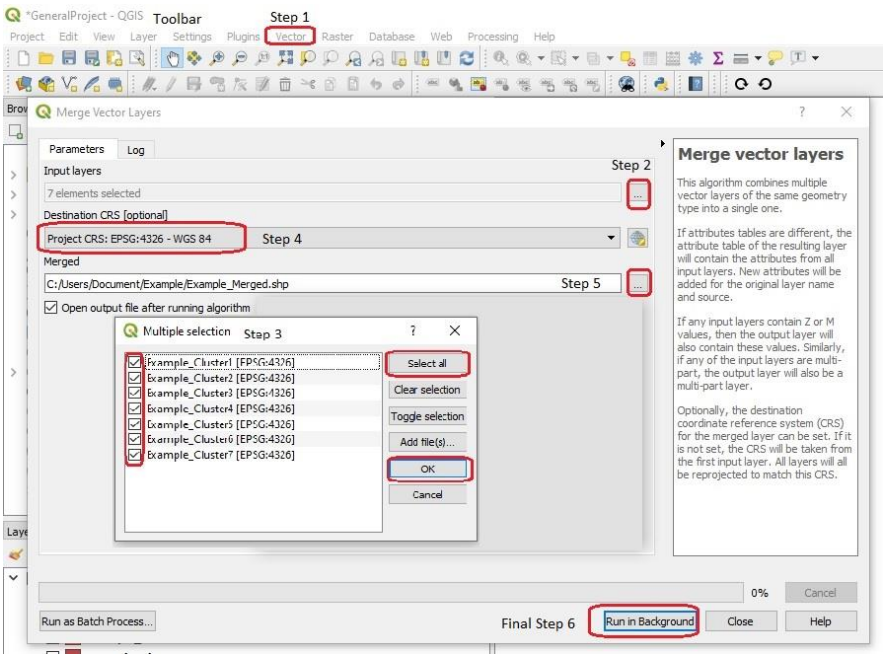

Figure 14. Merge Vector layers

When the run is finished, a new file will be created and opened in your QGIS.
Export this file as mentioned in section 2.