Manual mulch film calculator

Before starting

Close all other Excel-documents. Otherwise the program cannot work correctly.

If you open the program you possibly get warned that the software contains macros (macros are small programs inside Excel). But a transmission of viruses is not possible in our program. Foreign macros have not been included but only self made virus free and harmless macros.
For a pleasant usage of the program possibly the security settings in your Excel must be changed in the following way:

→ Open a new Excel-document
→ Go to "**Tools"** in the menu bar
→ Click on **"Macro"**
→ Click on „**Security"**
→ Choose the tab **"Security level"** and select **"medium"** or **"low"**
→ Click **"ok"**
→ Close Excel

Now you can start the mulch film calculator!

After using the program it is recommended to reset the security settings to "high" or "very high".

General Information

Decimal numbers have a comma (1,40 m = 140 cm) and numbers over thousand will be shown in the following way: 2470 = 2.740.
By choosing "calculate values" you can work with default average values from the database. These values often can be replaced. You also have the possibility to calculate with your own values for machinery and labour by choosing "enter overall value".

Sponsored by

FACHAGENTUR NACHWACHSENDE ROHSTOFFE e.V.

Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz

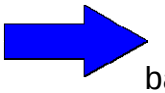
Symbols and Buttons

„Default values“: The default values from the database are loaded for this program page. These values can be changed afterwards.

„Load own data“: The entered values from the last session are loaded.

„Info“: Support and information for the current action.

„Calculate! “: The entered values and the selected settings are calculated and the interim result is updated.



„Forward“ and **„Backward“:** Step forward to the next page or step backward to the recent.

„Cancel“: The active page or the mulch film calculator will be closed and the entered values and settings are saved.

„Change data“: The values and settings can be changed at the accordant page.

„Chart“: The results will be shown in different charts.

„Print“: Print out the results or save the result table.

1. Welcome page

Start the program with the button „**start program**“.

2. Basic data

On this page the **horticultural crop** (lettuce, pickling cucumber Florence fennel etc.) and the **cultivation variant** (integrated, organic) can be selected. To calculate another, not listed crop choose “others_”. After that the **comparison variant** must be chosen: “biodegradable - Plastic mulch film or biodegradable - uncovered soil or biodegradable - Plastic mulch film - uncovered soil.

Next the operating data must be entered: costs for **staff** and for **seasonal workers** and also the percentage of staff. The percentage of seasonal workers is calculated automatically.

The overall value for variable machinery costs is the basic value for all further operations where machines are used.

3. Enter Mulch film data

On this page first the **mulch film requirement** has to be entered. For this the required mulch film width, the bury depth and also the field size (width, length and number of rows) where the mulch film is planed to be laid have to be entered. The interim results (net film width, field size and film requirement) are shown at the right hand side of the page.

Now the prices for the biodegradable mulch film and plastic mulch film (if this comparison variant was chosen) have to be entered. The film costs (€/ha) are calculated with the film strength values (µm) and the film price (€-cent/m²).

Next the **laying method** must be selected. To calculate the costs for machinery and labour (€/ha) the default values for “distance enterprise-dumping enterprise (km)”, the “operation speed (km/h)” and the “labour requirement (number of persons)” can be selected or replaced by own specific values. It is also possible to enter own specific overall values for “machinery (h/ha)” and “labour (h/ha)”.

4. Removal

First it is requested whether drip irrigation is used. If “yes”, the effort of labour and machinery for the removal of the irrigation tubes can be entered in the same way as done with the laying method.

In case a comparison variant with plastic mulch film was selected the related data for the removal at the end of the cultivation must be entered.

5. Enter plastic mulch film data

Only if a comparison variant with plastic mulch film was selected this window appears. The data for the **disposal of the used plastic mulch film** can be entered here.

The amount of waste (t/ha) is automatically calculated with the values of the mulch film amount and the specific film weight. You can also enter your own specific value.

It is now requested whether the used film is stored temporarily for a certain time in the enterprise. If “yes” the default value for the storage costs can be taken or can be replaced by your own specific value.

With the values for the disposal method and the accordant fees (€/t film) the pure disposal costs (€/ha) get calculated.

Next the method of the transport of the used mulch film and the distance (km) to the dumping enterprise must be selected.

Choosing “delivery“ the labour requirement (number of persons), the variable costs for the transport vehicle (€/h) and the transport capacity of the transporting vehicle (t) must be entered. Choosing “pick-up service: transport + container lending fees” requires the values for the transport costs (€/t) and the container lending fees (€/t). The variant “pick-up service: dependent on distance” requires the value for the transporting costs (€/km*t). The distance between your enterprise and the dumping enterprise is required in all variants.

The interim result shows the **transport costs** and the **total disposal costs** (both in €/ha).

6. Interim analysis or further calculations

Here you have the possibility to analyse the previous data (click “interim analysis”) or you can step directly forward to the gross margin calculation, where the direct costs and variable costs for the selected crop can be calculated (click “gross margin calculation”).

There also is the possibility to look at the interim analysis first and step forward to the gross margin calculation afterwards.

7. Interim Analysis

All previous values und settings are listed in the different tabs “General data”, “Laying”, “Removal” and “Disposal” with the results of total costs und efforts. With the buttons on the right hand side the results can be shown graphically in charts or printed in form of a table.

The values and settings can be changed by clicking “change values”.

After that the program can be either cancelled or continued with the gross margin calculation.

8. Crop and yield data

Here the general crop specific data can be entered. Depending on the selected crop data for the mean yield (dt/ha or pcs/ha) such as planting density (plants/m²), harvesting quota (%) or specific weight are required.

To calculate the **income** you can enter an average price for the whole harvest or you can enter distribution dependent or quality dependent prices in one to four categories (e.g. direct selling or wholesale market). At this every distribution channel or quality can be considered with specific amounts and prices.

Next **other earnings** such as founds or donations can be entered.

The **total income** is calculated by the entered values (“calculated value”). With “corrected value” you can correct the calculated value considering damaged, unsalable or unsold products and the related decrease of income.

9. Crop plant / Fertiliser / Crop protection / Irrigation

The **costs for transplants or seeds** (€/ha) can be calculated with the required number of transplants per ha or number of seeds per ha and the accordant price per 1000 transplants or per 1000 seeds („calculate values“). It is also possible to enter an overall value („enter overall value“).

After that the **fertiliser costs** (€/ha) can be entered.

To calculate the **costs for crop protection** (€/ha) the current costs for insecticides, fungicides and herbicides must be entered.

The **costs for irrigation water** (€/ha) can be calculated by entering the required amount of irrigation water (m^3/ha) and the water price (€/m^3). It is also possible to enter an overall value.

10. Plastic row cower / floating row cover / Irrigation tubes / Marketing / Disposal

First the **costs for plastic row cover** can be calculated. For this the costs (€/ha), the required amount (m^2) and the price (€/m^2) are required. It is also possible to enter an overall value (€/ha*year).

The **costs for floating row cover** can be calculated in the same way as plastic row cover. Because some growers do use the floating row cover for more than one year, the costs per year are additionally required.

The **costs for irrigation tubes** get calculated by the values for the required amount (running metre) und the price (€/ running metre). It is also possible to enter an overall value (€/ha*year). These fields and boxes are only active if in one the former sides “using drip irrigation” was answered with “yes”.

After that the **marketing costs** including packing costs and distribution costs and also the **disposal costs** for floating row cower, plastic row cower, pots and so on – EXEPT MULCH FILM – can be entered.

11. Variable Costs

All variable machinery and labour costs can be calculated with the values for the time requirement (h/ha) of the single crop specific operations or one overall value for all of them can be entered.

Following operations can be considered: soil preparation, transplanting or seeding, fertilising, mechanical weed control, spraying of pesticides, harvesting, cleaning and grading the harvest and others (laying floating row cover, installation of irrigation…).

If you select “overall values” it is not possible to consider the mulch film effects in the further program.

Finally insurance (€/ha) and other variable costs (€/ha) can be entered.

12. Effects of Mulch films

The effects of biodegradable and plastic mulch film are being treated equally.

The mulch film effects on different properties can be considered by estimating decrease or increase (in %) compared to the cultivation on uncovered soil. These properties are: yield in (dt/ha) or harvesting quota (%), income (€/ha), cleaning / grading (h/ha), manual hoeing (h/ha), mechanical hoeing (h/ha), effort at herbicides (€/ha), spraying herbicides (h/ha) and effort at irrigation water.

The interim result shows the changed gross margin due to the estimations.

13. Results

According to the chosen comparison variant, the entered values and the selected settings the results can be shown with or without considering estimations of the mulch film effects.

At the result page inside the different tabs “Settings”, “Yield and direct costs”, “Machinery costs” and “Labour costs” you can find the sorted and summarised results. Inside “Gross margin” the basic values such as the total direct costs, the total variable or the gross margin are listed.

At the result page including the considering of the mulch film effects is one more tab “Mulch film effects”, where the estimations are listed.

All those lists can be shown in form of charts or in form of an Excel-table which can be printed or saved as a single file by clicking the respective buttons.