



**Planning Land Application of Nutrients for
Efficiency and the EnvironmenT**

**Organic Manures Inventory and
Storage
Help file**

**PLANET version 3.3
(England & Wales)**

Organic Manures Inventory and Storage

The Nitrate Pollution Prevention Regulations 2008 establishes a number of rules about the storage of organic manures on farms in England in a Nitrate Vulnerable Zone (NVZ). For details of these rules, see NVZ Guidance leaflet available from the *Library* menu.

The PLANET Organic Manures Inventory and Storage module calculates the monthly production of organic manures on your farm based on details of the livestock on the holding, and allowing for any imports and exports of manure. It calculates the NVZ minimum storage requirement and the approximate nutrient content of the manures.

The PLANET Existing Manure Store Capacity module calculates the capacity of your existing manure stores.

Important


The information supplied in the PLANET software is for guidance purposes only and is not intended to fully substitute for professional agricultural advice. The specific statutory elements concerning water and nitrates are set out in the relevant national legislation and you should refer to this legislation to find out exactly what you must do. The nutrient recommendations provided by PLANET are in line with national industry standard guidance. If in doubt, farmers should seek help from a qualified adviser.

The user is responsible for ensuring the accuracy and completeness of all data entered and used by PLANET, and for any commercial decisions taken based on any of the PLANET recommendations or other outputs of this software. Use of the PLANET software is subject to the terms and conditions of the PLANET User Licence.

PLANET v3 has been developed by ADAS and SRUC with funding and support from Defra and the Scottish Government. The software is maintained by ADAS. For further information, visit www.planet4farmers.co.uk or ring the PLANET Helpline on 08453 451302.

Getting started


To use this module, you must first either create a new farm file or open an existing farm file. If you are starting a new file, then as a minimum you must enter the Farm name, STD code and Postcode in the Farm Details tab before you can open the module – but you do not need to enter any other information. You will be prompted to save any changes before you enter the module.

To use the module, select the Organic Manures Inventory and Storage icon  from the task bar at the top of the screen, or select *Organic Manures Inventory and Storage* from the *View* menu.

The module will appear with seven tabs (screens).

- Manure Stores
- Livestock Details
- Wash Water
- Imports and Exports
- Low Run-off Risk Land
- Inventory
- NVZ Minimum Storage


You will need to enter information into each relevant tab. The Inventory tab will then show you the quantities, and approximate nutrient value (amounts and financial value) of the organic manures on the holding. The NVZ Minimum Storage tab will show you the estimated minimum storage requirements in order to comply with the NVZ rules. For further information, see the NVZ Guidance available from the *Library* menu.

Further information to help with data entry is provided throughout PLANET by hovering over the column header where there is a  button shown, or by clicking in any data entry cell and then pressing the F1 key.

The PLANET Helpline can be contacted on 08453 451302 but this Helpline will NOT give specific technical advice on manure or fertiliser use for a specific farm or field crop.

Important. You can only save one set of data in this module. For instance, if you enter data for a calendar year then this will be saved on your computer. However, if you then edit this data (e.g. for a later calendar year) the original data will be overwritten and only the new data will be saved. Therefore, if you wish to keep a permanent record of the PLANET calculation and report for a particular calendar year, you should either print out a hard copy of the PLANET report before making any edits to the data, or use the *Save As* function in the *File* menu to save each set of data as a separate Farm file which you will need to name individually.

Manure Stores tab

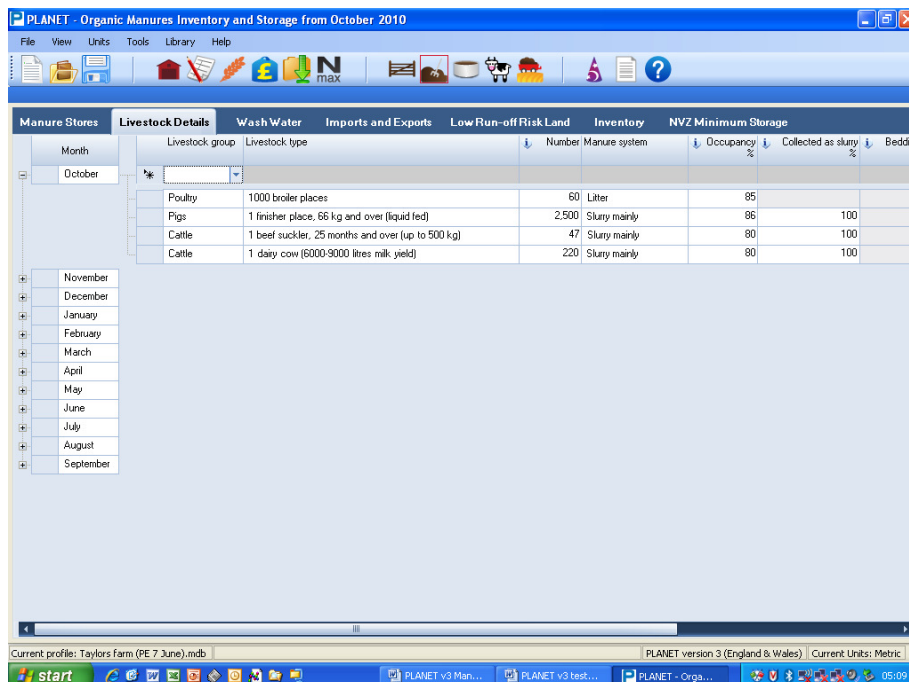
1. Select the starting month and year for the inventory. Entries can be made for up to 12 months starting October.
2. Enter the farmed area, making separate entries for land inside and outside an NVZ. The area of land not in an NVZ will influence the minimum NVZ storage requirement need for slurries and poultry manures.
3. Enter the capacity and surface area of existing **Slurry stores**, **Dirty water stores** and **Solid manure stores on an impermeable base or in poultry houses** that are on the holding. You should include any that are on rented land under your control during the assessment period. If you wish, you can use the PLANET module 'Existing Manure Store Capacity' to calculate the storage capacity of individual stores. Be careful to enter information in the same units as the current selection, i.e. metric or imperial - you can choose the units by going to the *Tools* menu at the top of the screen.
4. Enter the total area of **Rainwater collection areas**. If there are several individual areas, you will need to work out the total of these areas and enter this value.
5. Enter the calendar year of the **Inventory Period**. The period is for 12 months starting in October but you can calculate the inventory for any range of months you wish.
6. The annual **Rainfall** is generated automatically from the STD code that you entered when the Farm details were set up. Go back to the Farm Details module  to change this if it is incorrect.
7. If you wish, edit the default values of the **Nutrient price** (monetary value) of nitrogen, phosphate and potash by entering either the pence/kg of nutrient or £/tonne of fertiliser product.
8. When you have entered all the required details, click on the **Livestock Details** tab.

Livestock Details Tab

You will need to enter details for each month that you wish the inventory to cover. If you wish to calculate an estimate of the NVZ minimum manure storage requirement then you must enter all required details for October to March inclusive (for pigs and poultry), or October to February inclusive (for other livestock, including cattle).

To expand or collapse information for a month, select the + or – to the left of the month name. To **Expand all months** or **Collapse all months**, click the right hand mouse button and select the required option, or go to the *Tools* menu at the top of the page.

Once you have entered Livestock details for one month, you can use the Data Entry Wizard to copy this information to other selected months in the Livestock details and/or Wash water tabs.



1. For each **Month**, enter the details of all livestock on the farm during the month. Always enter new information in the top row for the month and press the return key to accept the row information. Include livestock on rented land that is covered by a written agreement and that is under your control.
2. Select the **Livestock group** and **Livestock type** for each type of livestock that you have on the farm during the month. For each Livestock type, you will first have to select the appropriate Livestock group (e.g. cattle), then select the Livestock type (e.g. 1 dairy cow, 6000-9000 litres milk yield). You must include livestock kept on rented land that is under your control during the calendar year.
3. Enter the average **Number** of each livestock type that are on the farm for the whole month, including livestock kept on rented land that is under your control. If livestock are on the farm for only part of the month then enter the pro-rata number. For instance, if there are 30 dairy heifer replacements on the farm for just 2 weeks then enter the number 15 which is the pro-rata average number for the month ($30 \times 2/4 = 15$); this is equivalent to having 15 heifers for the whole month. For pigs and poultry (except ostriches), where there are usually several 'batches' of livestock produced in a year, enter the number of 'places' on the holding.
4. Estimate the **% Occupancy** of the livestock during the month. This is the percentage of the excreta production that is collected for storage as slurry or solid manure – the remaining excreta

may be deposited at grazing. Edit the default values if appropriate. The entry in the column '%Collected to slurry' splits this quantity of excreta into storage as slurry or solid manure.

For pigs and poultry, estimate the percentage of the available livestock places that are occupied during the month allowing for washdown time, etc. For outdoor pigs, enter 0%.

For grazing animals, estimate the percentage of the excreta that is deposited within the housing and collection yards (i.e. excluding excreta deposited during grazing). You can edit the default value if it is incorrect.

5. Use the drop-down list to change the default **Manure system** if it is incorrect (e.g. *Free range* is available here for poultry layers).
6. Estimate the % **Collected to slurry**. This estimates the percentage of the excreta collected for storage that is put into store as slurry including liquid excreta draining from manure stored on an impermeable surface. The balance of the collected excreta will be mixed with bedding and handled as solid manure. For instance, if all the collected excreta is to be stored as slurry, the percentage will be 100%. Edit the default values if appropriate.


When estimating this percentage to calculate the NVZ minimum storage requirement, all of the material going into a weeping wall or strainer box store should be counted as slurry.

Do not allow here for slurry that is separated using a mechanical separator. Enter this in a later column on this screen.
7. For housing systems that include bedding, a **Bedding factor** is used to calculate the quantity of solid manure produced (e.g. FYM). You can edit the default value if it is incorrect.
8. The total quantity of **Bedding t/month** used during the month is automatically calculated. You cannot edit this value. If this value is incorrect, then you should alter the % excreta to slurry and/or the bedding factor until the total quantity of bedding used during the month is more accurate.
9. Tick the **Mech separation** box if some of the collected slurry always goes through a mechanical separator that removes solids from slurry. These separators commonly reduce the slurry volume by 5-10% (pigs) or 15-20% (cattle).
10. If you have ticked Mech separation, enter the % **Slurry separated**. This is the percentage of the slurry collected that goes through the mechanical separator(s). You can edit the default value if it is incorrect. PLANET will automatically calculate the amount of solids separated from the slurry.
11. Repeat steps 1 to 10 for each livestock type on the farm during each month of the inventory. You can either enter these details manually for each month, or use the Data Entry Wizard. This Wizard will copy selected information from a source month in Livestock Details to selected destination months. See below for further details.
12. To delete a row of information, highlight the row by clicking on the small cell at the far left hand end of the row then press the *Delete* key. If you hold down the Control key, you can select multiple rows. To clear all the information on this tab (screen), click the right mouse button and select **Clear this tab**. To clear information on all the tabs (screens) in this module select **Clear all tabs**.
13. When you have entered all the required details for all relevant months, click on the **Wash Water** tab.

Data Entry Wizard

The Data Entry Wizard provides a quick and simple method for copying selected information that has already been entered into Livestock Details for one month, to one or more other months in the Livestock Details and/or Wash Water tabs.

The left screenshot shows the 'Select source month in the Livestock Details tab' step. It features a drop-down menu for 'Month' set to 'October' and a grid of checkboxes for 'Select destination months' with October, November, December, January, February, and March checked. The right screenshot shows the 'Copy information to:' step with two columns of checkboxes. The first column, 'Livestock Details tab', has checkboxes for 'Livestock group', 'Livestock type', 'Number', 'Manure system', 'Occupancy', 'Collected as slurry', 'Bedding factor', 'Mechanical separation', and 'Slurry separation'. The second column, 'Wash Water tab', has checkboxes for 'Livestock group', 'Livestock type', and 'Number'. Both screenshots include 'Help', 'Cancel', '< Back', 'Next >', and 'Finish' buttons at the bottom.

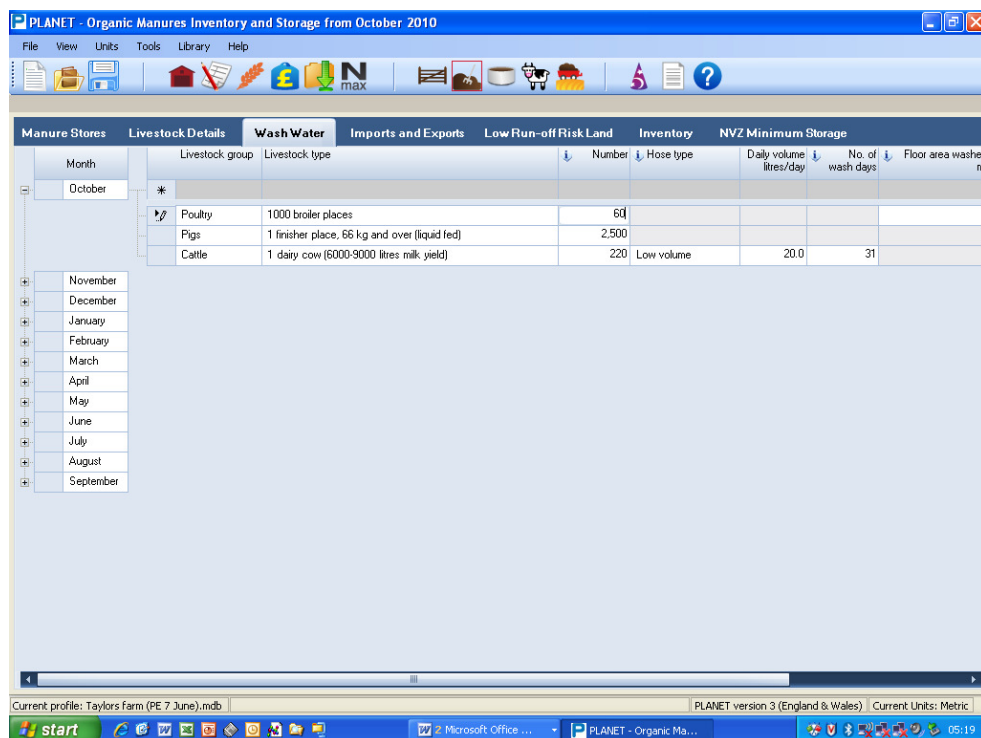
1. Select the Data Entry Wizard 
2. Select the 'source' month from the drop-down list, and the 'destination' months. Click Next.
3. Select where you want the source month information to be copied to (Livestock Details and/or Wash Water tabs), and the data items to copy. Click Finish.
4. Once information has been copied to the selected destination months, you must check and edit each item of information to make sure that it is correct for the specific month.

At any time you can export all of the information you have entered in this grid to an Excel spreadsheet where you can carry out further manipulation of the data. To do this, click the right hand mouse button and select **Export this tab**. All information in the grid will be exported to an Excel file that will be saved in Documents/PLANET/Data.

Wash Water tab

You will need to enter details for each month that you wish the inventory to cover. If you wish to calculate an estimate of the NVZ minimum manure storage requirement then you must enter all required details for October to March inclusive (for pigs and poultry), or October to February inclusive (for other livestock).

To expand or collapse information for a month, select the + or – to the left of the month name. To **Expand all months** or **Collapse all months**, click the right hand mouse button and select the required option, or go to the *Tools* menu at the top of the page.



1. For each **Month**, enter the details of all livestock on the farm where wash water is used in that month. Always enter new information in the top row for the month and press the return key to accept the row information. Include livestock on rented land that is under your control.
2. Select the **Livestock group** and **Livestock type** for each type of livestock that you have on the farm during the month. First select the appropriate Livestock group (e.g. cattle), then select the Livestock type (e.g. 1 dairy cow, 6000-9000 litres milk yield). You must include livestock kept on rented land that is under your control during the month.
3. Enter the average **Number** of each livestock type that are on the farm for the whole month, including livestock kept on rented land that is under your control. If livestock are on the farm for only part of the month then enter the pro-rata number. For instance, if there are 30 dairy heifer replacements on the farm for just 2 weeks then enter the number 15 which is the pro-rata average number for the month ($30 \times 2/4 = 15$); this is equivalent to having 15 heifers for the whole month. For pigs and poultry, where there are usually several 'batches' of livestock produced in a year, enter the number of 'places' on the holding.
4. For dairy cows only, select the **Hose type** from the drop-down list (low or high volume).
5. For poultry only, after selecting the **Livestock type** from the drop-down list, enter the total **Floor area** of all building(s) that are washed during the month. Be careful to enter information in the

same units as the current selection, i.e. metric or imperial - you can choose the units by going to the *Tools* menu at the top of the screen.

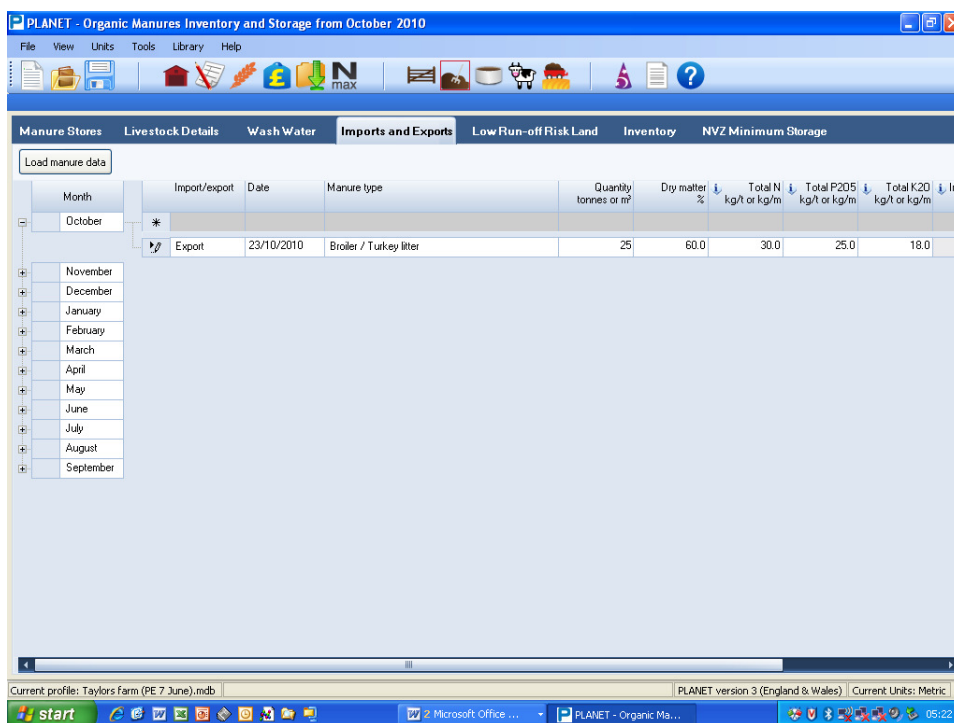
6. The **Monthly volume** of wash water used will be shown automatically for dairy cows, all pigs and most poultry. You can edit this value if you have more specific information (e.g. a water meter). For other livestock types, you can enter a monthly volume.
7. Select the **Destination** of the wash water from the drop-down list (i.e. storage in a Dirty water store, Cattle slurry store, or Pig slurry store).
8. Repeat steps 1 to 7 for each livestock type on the farm during each month of the inventory. You can either enter these details manually for each month, or use the Data Entry Wizard. This Wizard will copy selected information from a source month in Livestock Details to selected destination months.
9. To delete a row of information, highlight the row by clicking on the small cell at the far left hand end of the row then press the *Delete* key. If you hold down the Control key, you can select multiple rows. To clear all the information on this tab (screen), click the right hand mouse button and select **Clear this tab**. To clear information on all the tabs (screens) in this module select **Clear all tabs**.
10. When you have entered all the required details, click on the **Imports and Exports** tab.

At any time you can export all of the information you have entered in this grid to an Excel spreadsheet where you can carry out further manipulation of the data. To do this, click the right hand mouse button and select **Export this tab**. All information in the grid will be exported to an Excel file that will be saved in Documents/PLANET/Data.

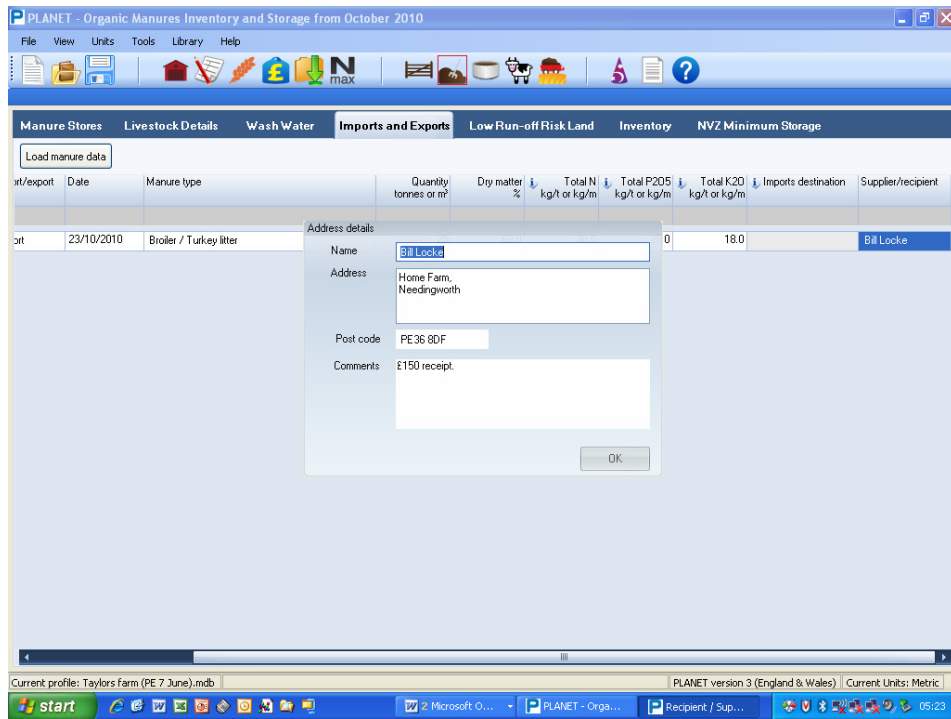
Imports and Exports tab

You will need to enter details for each month that you wish the inventory to cover. If you wish to calculate an estimate of the NVZ minimum manure storage requirement then you must enter all required details for October to March inclusive (for pigs and poultry), or October to February inclusive (for other livestock).

To expand or collapse information for a month, select the + or – to the left of the month name. To **Expand all months** or **Collapse all months**, click the right hand mouse button and select the required option, or go to the *Tools* menu at the top of the page.



1. For each **Month**, enter details of the organic manures that are always imported onto, or exported off the farm. Always enter new information in the top row for the month and press the return key to accept the row information.
2. Select import or export from the **Import/Export** drop-down list.
3. Select or enter the date of import or export.
4. Select the **Manure type** from the drop-down list.
5. Enter the **Quantity** of the manure type that is imported or exported in either metric units (tonnes or cubic metres) or imperial units (tons or gallons). Be careful to enter information in the same units as the current selection, i.e. metric or imperial - you can choose the units by going to the *Tools* menu at the top of the screen.
6. The **Dry matter, N, P₂O₅ and K₂O** contents of the manure type will be generated automatically. You can edit any of these values if you have more specific information (e.g. laboratory analysis). For manure type *Other*, you must enter these values.
7. For imports, select the **Imports destination** from the drop-down list.
8. For exports, select the **Exports destination** from the drop-down list.
9. Click in the **Supplier/Recipient** cell and enter details of the supplier of imported manure or the recipient of exported manure. You can copy and paste information from one Comments box to another using Control C (copy) and then Control V (paste).



10. Repeat steps 1 to 9 for each type of manure that is imported or exported in each month of the assessment period.
11. To delete a row of information, highlight the row by clicking on the small cell at the far left hand end of the row then press the *Delete* key. If you hold down the Control key, you can select multiple rows. To clear all the information on this tab (screen), click the right hand mouse button and select **Clear this tab**. To clear information on all the tabs (screens) in this module select **Clear all tabs**.
12. When you have entered all the required details, click on the **Inventory** tab. If you haven't already saved your data, you will be asked to 'Save the changes'.

At any time you can export all of the information you have entered in this grid to an Excel spreadsheet where you can carry out further manipulation of the data. To do this, click the right hand mouse button and select **Export this tab**. All information in the grid will be exported to an Excel file that will be saved in Documents/PLANET/Data.

Low Run-off Risk Land tab

The NVZ minimum manure storage requirement may be reduced by the volume of slurry or poultry manure that can always be applied to land with a low risk of run-off following the end of the closed period.

The NVZ minimum manure storage requirement may be reduced by the volume of slurry or poultry manure that can always be applied to land with a low risk of run-off following the end of the closed period, provided:

- You comply with all other NVZ rules, including the requirement NOT to spread more than 50 m³/ha of slurry, or 8 t/ha of poultry manure in a single application between the end of the closed period and the end of February. You must allow at least 3 weeks between each individual application during this period.
- You mark the areas of low run-off risk land on your farm risk map for spreading organic manures.
- You provide, as a contingency arrangement, additional storage capacity equivalent to one week's worth production of manure. If you make any entry here, PLANET will automatically calculate this extra requirement.

Low run-off risk land is land that:

- Has an average slope of less than 3 degrees
- Does NOT have land drains
- Is at least 50 metres from a watercourse or conduit leading to a watercourse

Area of low run-off risk land ha

Month	Manure	Quantity tonnes or m ³
January	*	
February	* Cattle/other slurry	<input type="text" value="240"/>
March		

Current profile: Taylors Farm (PE 7 June).mdb | PLANET version 3 (England & Wales) | Current Units: Metric

1. Enter the area of low run-off risk land as defined in the NVZ guidelines.
2. Enter the quantity of livestock manure that you can always apply to this land each month.

Inventory tab

The Inventory tab shows calculated values based on the information that has been entered. It shows **Manure quantities** or **Nutrients**. The calculation may take a short time before the inventory values appear.

To expand or collapse information for a month, select the + or – to the left of the month name. To **Expand all months** or **Collapse all months**, click the right hand mouse button and select the required option, or go to the *Tools* menu at the top of the page.

Type	Month	Cattle	Pigs	Poultry	Sheep/other	Imports	Exports	Clean rainfall	Dirty rainfall	Net total retained on farm
Slurry (m³)	October	316	650					44	35	1,045
	November							46	37	83
	December							46	37	84
	January							41	33	74
	February							31	25	56
	March							40	32	71
	April							41	33	75
	May							44	35	79
	June							47	38	85
	July							40	32	72
August							49	40	89	
September							42	34	76	
Total		316	650					511	412	1,889
Dirty water (m³)	October	136	18					31	76	260
	November							32	79	111
	December							32	80	112
	January							29	71	99
	February							22	54	76
	March							28	68	96
	April							29	71	100
	May							30	75	105
	June							33	81	114
	July							28	69	97
August							34	85	119	

1. Use the drop-down lists to select the start and end **Months** that you want the inventory to cover.
2. Select the source categories you want to **Show information for**. Tick all those you want (cattle, pigs, poultry, sheep/other, imports, exports, rainfall).
3. Select either **Manure quantities** or **Nutrients**.

If you select Manure quantities, the screen will show the estimated quantities of slurry, dirty water, poultry layer manure, poultry litter and other solid manures (e.g. FYM) produced in each of the selected months for each of the selected sources. Wash water will be included as slurry or dirty water depending on where it is stored. Clean rainfall is rainfall that can often be redirected as drainage (e.g. from roofs, uncovered slurry or dirty water stores, and clean concrete); dirty rainfall is rainfall falling on uncovered solid manure stores or dirty concrete areas that may not be easily redirected. Quantities of imports (to store and to land combined) and exports will be shown.

If you have a weeping wall or strainer box type system, the estimated quantities are for the material that goes into store. Depending on the effectiveness of the slurry separation, some of the material coming out of store may be classed as solid manure under the NVZ rules, if it can be stacked in a freestanding heap without slumping, and does not drain liquid from the stacked material.

If you select Nutrients, the screen will show an estimate of the quantity of crop available nitrogen (N), total phosphate (P₂O₅) and total potash (K₂O), and an estimate of their financial value based on the nutrient prices entered in the Manure Stores Tab.

	Nutrient	Cattle	Pigs	Poultry	Sheep/other	Imports	Exports	Net total retained on farm
Quantity	Readily available N kg	480	877	810	0	0	225	1,942
	Total P205 kg	632	877	2,250	0	0	625	3,134
	Total K20 kg	1,684	1,170	1,620	0	0	450	4,024
Financial Value	Readily available N £	288	526	486	0	0	135	1,165
	Total P205 £	316	439	1,125	0	0	313	1,567
	Total K20 £	926	644	891	0	0	248	2,213

At any time you can export all of the information you have entered in this grid to an Excel spreadsheet where you can carry out further manipulation of the data. To do this, click the right hand mouse button and select **Export this tab**. All information in the grid will be exported to an Excel file that will be saved in Documents/PLANET/Data.

NVZ Minimum Storage tab

This tab calculates an estimate of the minimum storage capacity required to comply with the Nitrate Pollution Prevention Regulations 2008. You cannot enter any information in this tab.

Account is taken of the amount of slurry or poultry manure that is spread to low runoff risk land following the end of the closed period. For farms that are part-in and part-out of an NVZ, the NVZ minimum storage requirement is calculated pro-rata to the area of the farm that is inside the NVZ.

The NVZ Action Programme requires that there is a minimum storage capacity requirement for livestock slurries and poultry manures.

The minimum storage capacity for slurry must include the volume of slurry collected and any dilution water such as wash water and rainfall that is collected in the slurry store during October to March (pig or poultry slurry) or October to February (cattle/other livestock slurry), allowing for exports of slurry.

The minimum storage requirement for poultry manure is 6 months production (October to March), allowing for imports and exports.

For further information see the relevant NVZ guidance leaflet(s)

Area of farm in NVZ: 34 %


	Cattle/other slurry (m ³)	Pig slurry (m ³)	Rainfall to slurry stores (m ³)	Poultry layer manure (tonnes)	Poultry litter (tonnes)
October	316	650	79	0	65
November	316	650	83	0	90
December	316	650	84	0	90
January	316	650	74	0	90
February	316	650	56	0	90
March		650	71	0	90
Applied to low run-off risk land	240	0			0
Additional 1 weeks capacity	73	150	17		
Total	1,413	4,050	464	0	515
Total for farm area in NVZ	480	1,377	158	0	175

Total NVZ minimum slurry storage requirement 2,015 m³

Total NVZ minimum poultry manure storage requirement 175 t (350 m³)

Current profile: Taylors farm (PE.7.June).mdb | PLANET version 3 (England & Wales) | Current Units: Metric

Report

To view and print a report, select the report icon  from the task bar at the top of the screen. The report includes details of the information that has been entered, estimates of the manure quantities from different sources and their financial value, and an estimate of the NVZ minimum storage capacity requirement. Further details can be found in the NVZ Guidance leaflet 4 'The storage of organic manure'.

To return to other modules in PLANET select the required icon from the task bar or use the 'View' menu.