



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

**Organic Manures Inventory and
Storage
Help file**

**PLANET version 3.3
(Scotland)**

Organic Manures Inventory and Storage

The Nitrate Vulnerable Zone (NVZ) regulations establish a number of rules about the storage of organic manures on farms in Scotland that are in a NVZ.

For details of these regulations, see the NVZ Guidance available from the PLANET Library.

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. Support is provided by ADAS (in England and Wales) and SRUC (in Scotland). For further information, visit www.planet4farmers.co.uk or ring the PLANET Helpline on 08456 023864.

Getting started


To use this module, you must first create a new farm file and as a minimum, enter the Farm name, STD code and Postcode in the Farm Details tab. You do not need to enter any other information. You will then be prompted to give the file a name and to save it.

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 six tabs (screens).

- Manure Stores
- Livestock Details
- Wash Water
- Imports and Exports
- 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 NVZ Guidance available from the PLANET library.

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 08456 023864 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

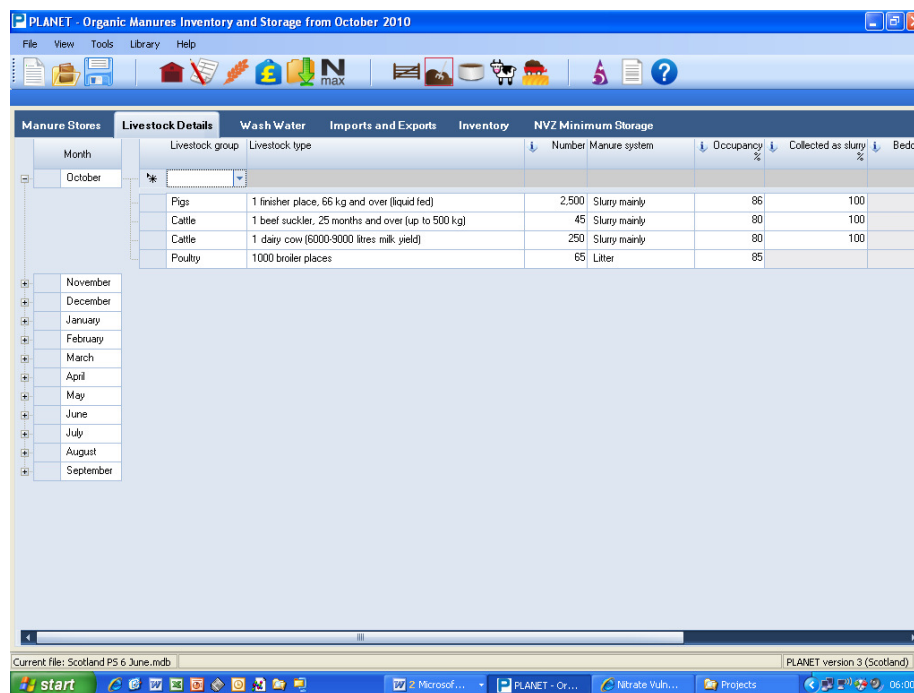
1. Select the start year. Entries can be made for up to 12 months starting at October.
2. Enter the farmed area, making separate entries for that is inside and outside any NVZ.
3. Enter the capacity and surface area of existing *Slurry stores*, *Dirty water stores* and *Solid manure stores on an impermeable base or in poultry houses* that are on the holding. If you wish, you can use the PLANET module 'Existing Manure Store Capacity' to calculate the storage capacity of individual stores.
4. Select Yes or No if there is any *cattle, pig or poultry slurry storage facility located inside an NVZ* on your farm.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
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).
3. Enter the average **Number** of each livestock type that are on the farm for the whole month. 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 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 image shows two screenshots of the PLANET Nutrient Management Data Entry Wizard. The left screenshot is 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 is the 'Copy information to:' step. It shows two columns of checkboxes for 'Livestock Details tab' and 'Wash Water tab'. Under 'Livestock Details tab', items like 'Livestock group', 'Livestock type', 'Number', 'Manure system', 'Occupancy', 'Collected as slurry', 'Bedding factor', 'Mechanical separation', and 'Slurry separation' are checked. Under 'Wash Water tab', 'Livestock group', 'Livestock type', and 'Number' are checked. Both screenshots have 'Help', 'Cancel', '< Back', 'Next >', and 'Finish' buttons at the bottom.

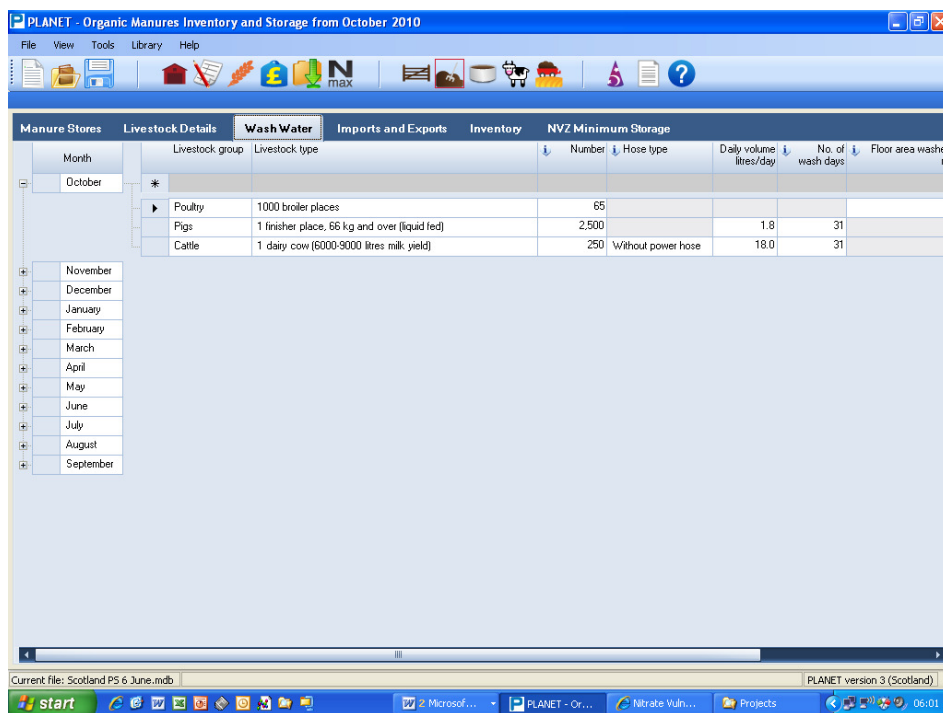
1. Select the Data Entry Wizard 
2. Select the 'source' month from the drop-down list, and the 'destination' months. Click Next.
3. Select where you want the source month information to be copied to (Livestock Details and/or Wash Water tabs), and the data items to copy. Click Finish.
4. Once information 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).

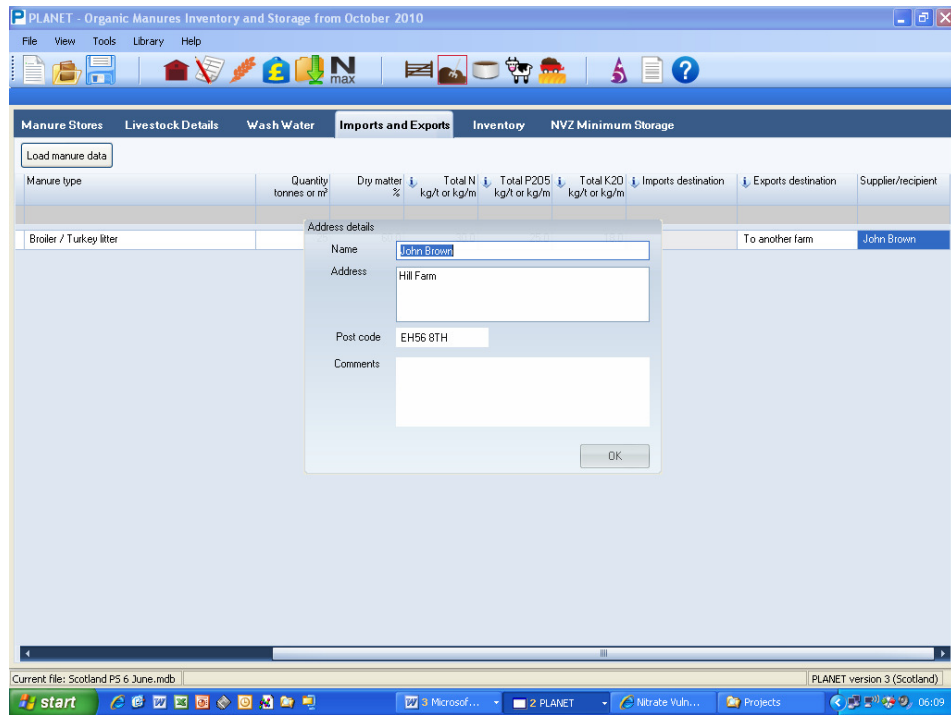
To expand or collapse information for a month, select the + or – to the left of the month name. To **Expand all months** or **Collapse all months**, click the right hand mouse button and select the required option, or go to the *Tools* menu at the top of the page.



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.
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).
3. Enter the average **Number** of each livestock type that are on the farm for the whole month. 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 (Power hose or Without power hose).
5. For dairy cows and pigs, you can edit the **Daily volume** or **Number of wash days**.
6. 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.

7. 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.
8. 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).
9. 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.
10. 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**.
11. 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.



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.

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.

Calculate total manure quantities and nutrients from: October to September

Show information for:

Cattle Pigs Poultry Sheep/other Imports Exports Rainfall Manure quantities Nutrients

Type	Month	Cattle	Pigs	Poultry	Sheep/other	Imports	Exports	Clean rainfall	Dirty rainfall	Net total retained on farm
Slurry (m ³)	October	353	650					62	50	1,115
	November	353	650					60	48	1,110
	December	353	650					53	43	1,089
	January	353	650					55	44	1,102
	February	353	650					40	32	1,075
	March	353	650					49	39	1,091
	April							40	32	72
	May							50	40	90
	June							48	39	87
	July							53	43	96
August							59	48	107	
September							60	49	109	
Total		2,115	3,900					630	508	7,152
Dirty water (m ³)	October	140	140					43	107	430
	November	135	135					42	103	414
	December	140	140					37	92	409
	January	140	140					38	94	413
	February	126	126					28	69	349
	March	140	140					34	84	398
	April							28	69	97
	May							35	86	121
	June							34	83	117
	July							37	91	128
August							41	102	144	

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	3,216	5,262	5,262	0	0	225	13,515
	Total P205 kg	4,230	5,262	14,622	0	0	625	23,489
	Total K20 kg	11,274	7,020	10,530	0	0	450	28,374
Financial Value	Readily available N £	1,930	3,157	3,157	0	0	135	8,109
	Total P205 £	2,115	2,631	7,311	0	0	313	11,744
	Total K20 £	6,201	3,861	5,792	0	0	248	15,606

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 NVZ minimum storage capacity. You cannot enter any information in this tab.

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)

	Cattle/other slurry (m ³)	Pig slurry (m ³)	Rainfall to slurry stores (m ³)	Poultry layer manure (tonnes)	Poultry litter (tonnes)
October	353	650	112	0	73
November	353	650	108	0	98
December	353	650	96	0	98
January	353	650	99	0	98
February	353	650	72	0	98
March		650	88	0	98
Storage facility in an NVZ	Yes	Yes	Yes	Yes	Yes
Total	1,765	3,900	575	0	563

Total NVZ minimum slurry storage requirement: 6,240 m³
 Total NVZ minimum poultry manure storage requirement: 563 t (1,126 m³)

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 Booklet 5 'Manure Planning 2: Livestock Manure Storage'.

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