Outside the Box

NMP Users/Advisors have requested that NMP online needs to be able to meet two pressing advisory needs. These are

- How to advise farmers to import manures (cattle slurry and pig slurry mostly)
- How to do a quick calculation of N and P allowances similar to the simple excel fertiliser planner

The good news is that NMP On-line is already capable of handling these computations – it a matter of knowing how to complete the fertiliser plan. The process is outlined in this bulletin. Any excel calculators that were in use prior to the new Nitrates Action Plan are now out of date and cannot be used to give advice for compliance for DAFM inspections.

While the instructions seem quite involved the process itself is relatively straightforward. However, care is needed to ensure that advice is accurate; and these steps are to provide approximate advice for the 2 bullet points above. DAFM will control/inspect on a full NMP so this bulletin is only for advice and users are advised to leave a 10% safety margin.

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1. **Slurry Imports - Introduction**

While ideally farmers should plan the importation of slurry and manure as part of an integrated proactive nutrient management plan the reality is that advisers are facing questions in the third quarter of the year about the capacity of the farmer to import manures and want a fast way to compute the amount that a farmer can import. This computation is not simple, hence the need for a support tool.

DAFM have expressed concerns about the number of farms importing manures who have exceeded allowed limits and being subjected to fines when audits are carried out.

A number of scenarios that are arising for advisers are dealt with in this document and are listed below:

<table>
<thead>
<tr>
<th>Scenarios</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

2. **No NMP in Place – No Soil Samples on the farm**

**Step 1 – Find or Setup Client.**

1. For non-Teagasc agents/agencies select “add-client” if the client is not on the system.
2. For Teagasc advisers clients are already on the system and users can search under agency clients. For non-Teagasc agents/agencies than “add-client” if the client is not on the system.
   - Change the Clients option to Agency Clients
   - Search for farmer name or farmer herd number.
   - Select the farmer from the list returned (If list is too long refine search) – click on row of the farmers data
Step 2 – Create plan for the farmer

Click on Create Plan

Complete Mandatory settings as below (these can be edited once the plan is created in settings).
Complete Optional settings as below (these can be edited once the plan is created in settings).

![Optional Settings](image)

Complete Units Entry (these can be edited once the plan is created in settings).

![Units](image)

NB – to change settings click on the Settings symbol (Cog wheel as shown)

The plan is now created

**Step 3 – Enter Land Details on Land Setup Page**

In a simple scenario for an all grassland farm with no soil samples (assuming index 3) all of the land can be entered as a single block. If tillage crops present they can be added as single blocks per crop. If crops are getting additional allowances such as reseeding these need to be separated.

![Plan - Land Setup](image)
Step 4 – Enter Livestock Details

You can enter livestock details on the farm (Alternatively you can leave this blank and enter the stocking rate at a later stage when the records plan is created.

If the plan is purely for the purposes of estimating the capacity to import slurry there is no need to enter the winter storage information

Step 5 – Enter Concentrate Feeds Details

- Enter Concentrate Feed consumed in the year prior to the plan
- Enter Last Year’s total organic N. Total N produced from grazing livestock in the previous year – not the NpH.

Step 6 – Create a records version of the plan

Create a records version of the plan so that the fertiliser usage in the current year can be entered quickly.
When you create a records version of the plan you will be automatically directed to that version of the plan. (There will now be two versions). In the records version there is an extra menu item in the menu bar

Click on the records menu item

**Step 7 – Enter Records**

If you have not entered the animals on the farm you have the option to enter the total N stocking rate for the year. (If you have entered animals you can use those figures or overwrite with total N for the year). Also enter the previous year’s GSR in the optional settings.

**Enter Fertiliser Records**

Fertiliser records comprise 4 elements. You can bulk together individual purchases by fertiliser type for this purpose to save time rather than detailing them as below

- Opening Stocks
- Purchases during the year
- Sales during the year
- Closing Stock
At the bottom of the page a fertiliser balance will be computed

Below this you will see the stocking rate on the farm

**Step 8 – Doing the Maths for Cattle Slurry and FYM**

NMP online will do the calculations automatically and the amount of slurry/FYM that the farm user will be allowed to import will depend on which of the 3 following limits are hit first

- Whole farm stocking rate of 170Kg / Ha (If plan type is GLAS or non-Derogation plan type NMP online will lock down the reports and this warning will appear **Warning!** 170 kg N/ha whole farm stocking rate exceeded and Organic Manure Imports in plan. Reduce/Remove Imports to 170 kg N/ha whole farm stocking rate or
- Exceeding the Chemical N allowed or
- Exceeding the chemical P allowed NMP online will lock down the reports and this warning will appear **Warning!** Max P Exceeded, Reduce/Remove Organic Imports or Increase Exports of manures to resolve issue

The following table can be used as a ready reckoner for cattle slurry and farm yard manure

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Calculation</th>
<th>Volume Cattle Slurry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole farm stocking rate</td>
<td>(170-WFSR)* Farm Area / 5 * (Total N/m³ of cattle slurry)</td>
<td>579.6 m³</td>
</tr>
<tr>
<td>Chemical N allowed</td>
<td>N Balance /2† (Available N/m³ of cattle slurry)</td>
<td>2969 m³</td>
</tr>
<tr>
<td>Chemical P allowed</td>
<td>P Balance / 0.8‡ (Available P/m³ of cattle slurry).</td>
<td>150 m³</td>
</tr>
</tbody>
</table>

Chemical P is the limiting factor in this example

In this case it looks as if a max of 150 M³ of cattle slurry can be imported. A safety margin should be built in to cater for the possibility of error. In the plan enter 120 M³ of cattle slurry.
**FYM Ready Reckoner - Minimum of**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Calculation</th>
<th>Tonnes FYM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole farm stocking rate</td>
<td>(170-WFSR)* Farm Area / 4.5*</td>
<td>644 T</td>
</tr>
<tr>
<td></td>
<td>* (Total N/m³ of cattle Slurry)</td>
<td></td>
</tr>
<tr>
<td>Chemical N allowed</td>
<td>N Balance /1.35†</td>
<td>4397 T</td>
</tr>
<tr>
<td></td>
<td>† (Available N/m³ of cattle Slurry)</td>
<td></td>
</tr>
<tr>
<td>Chemical P allowed</td>
<td>P Balance / 1.2‡</td>
<td>100 T</td>
</tr>
<tr>
<td></td>
<td>‡ (Available P/m³ of cattle slurry).</td>
<td></td>
</tr>
</tbody>
</table>

Chemical P is the limiting factor in this example

In this case it looks as if a max of 100 Tonne of FYM can be imported. A safety margin should be built in to cater for the possibility of error. In the plan enter 80 tonne FYM import.

Once the import is entered it is important to check that all 3 limits are being met.

**Step 9 – Doing the Maths for Pig Slurry**

Because of the transitional arrangement there is a different procedure for dealing with pig slurry imports.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Calculation</th>
<th>M3 Pig Slurry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole farm stocking rate</td>
<td>(170-WFSR)* Farm Area / 4.2</td>
<td>690</td>
</tr>
<tr>
<td>Chemical N allowed</td>
<td>N Balance /2.1</td>
<td>2827</td>
</tr>
<tr>
<td>Chemical P allowed</td>
<td>(P Balance + 3*Farm Area ha’s) / .8 ‡</td>
<td>279</td>
</tr>
</tbody>
</table>

† 3kg’s/ha in 2018 Reduces to 2 and 1 in 2019 and 2020 respectively
Notes

- There are no soil samples on the farm in this sample so none of the manure can be allocated to Index 1 or 2 soils.

Transition Rule Explained

A transitional arrangement to support the importation of Pig Manure is in place and is set out in Article 34 and Table 22 of S.I. No. 605 of 2017. This transitional rule allows the exceedance of the P limit by

- 3 kg/ha in 2017
- 3 kg/ha in 2018
- 2 kg/ha in 2019
- 1 kg/ha in 2020
- 0 kg/ha in 2021

The transitional rule allows the user to increase the P allowance by the lesser of

- 3 kg per ha in 2018
- The amount of utilisable P in imported pig manure

In the example above 278 Tonnes of Pig Manure is entered for importation. The transitional rule allows an increase in the P allowance of the lesser of

- 3 kg per ha \(34.5 \times 0.3 = 103.5 \text{ kg} \) (See figure above)
- The amount of utilisable P in imported pig manure \(278 \times 0.8 = 222.4 \text{ kg}\)

NMP online will carry out the calculations within the “Land and Fert Max” page
3. **GLAS NMP in Place – Soil Samples on the farm**

Where an existing plan exists for a client and you wish to calculate the potential to import slurry a number of steps need to be carried out.

Step 1  Find the client  
Step 2  Make a copy of the plan if the plan is not for the current year  
Step 3  Make a records version of the plan  
Step 4  Make sure all soil samples are up to date  
Step 5  Make sure that the land area and crops shown are correct  
Step 6  Update the meal feeding records as appropriate for previous year  
Step 7  Update animal information for current year  
Step 8  Update allocation of Organic Manure as appropriate  
Step 9  Enter previous years GSR in general settings  
Step 10  Enter Fertiliser Records Information  
Step 11  Estimate Organic Manure Import Capacity

**Step 1 – Find Client.**

The client already has a plan on the system. If you did not prepare the plan you will need to search.

- Change the Clients option to Agency Clients
- Search for farmer name or farmer herd number.
- Select the farmer from the list returned (If list is too long refine search)

![Image of search interface]

When you find the client select the most recent plan in the list for the client and open it. If you did not create this plan originally you will not be permitted to make any changes without creating a version of this plan first.
Step 2  
**Make a copy of the plan if the plan is not for the current year**

Where the version of the plan is not the current year (2018) you will need to create a copy of the plan for 2018 and then make a Records version of the Plan.

You will be brought to the new copy of the plan

**Step 3 – Create a new records version of the plan.**

Create a records version of the plan

When you create a records version of the plan you will be automatically directed to that version of the plan. (There will now be two versions). In the records version there is an extra menu item in the menu bar.
Step 4 Make sure all soil samples are up to date

The flag indicators are designed to indicate if soil samples are within date. For example, if a plan was in date for a 2016 plan but copied forward it is possible that some soil samples might be out of date for a 2018 plan. If a sample is out of date and has an area attached to a plot the soil sample will need to be removed from the crop details (and preferably replaced with an up to date sample).

Step 5 Make sure that the land area and crops shown are correct

Ensure that the land farmed is consistent with the BPS/LPIS information submitted by the farmer.

Step 6 Update the meal feeding records as appropriate for previous year

For a copied plan meal feeding information will be out of date. Replace with records for the year prior to the plan year.

Step 7 Update animal information for current year

There are two possible ways to update the animal information. The animal numbers can be modified in the ‘Animal Numbers’ screen or the overall N load for the farm can be entered in the ‘Records’ screen.

Step 8 Update allocation of Organic Manure as appropriate

Check the allocation of organic manures to ensure the reality is reflected.
Step 9 Enter Fertiliser Records Information

Fertiliser records comprise 4 elements. You can bulk together individual purchases by fertiliser type for this purpose

- Opening Stocks
- Purchases during the year
- Sales during the year
- Closing Stock

At the bottom of the page a fertiliser balance will be computed

Below this you will see the stocking rate on the farm

Step 10 Estimate Organic Manure Import Capacity

The amount of slurry that the user will be allowed to import will depend on which of the following limits are hit first

- Whole farm stocking rate of 170Kg / Ha
- Exceeding the Chemical N allowed
- Exceeding the chemical P allowed
The following table can be used as a ready reckoner for cattle slurry and farm yard manure.

### Cattle Slurry Ready Reckoner - Minimum of

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Calculation</th>
<th>Volume Cattle Slurry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole farm stocking rate</td>
<td>(170-WFSR)* Farm Area / 5</td>
<td>313</td>
</tr>
<tr>
<td>Chemical N allowed</td>
<td>N Balance /2</td>
<td>2561</td>
</tr>
<tr>
<td>Chemical P allowed</td>
<td>P Balance /0.8</td>
<td>678</td>
</tr>
</tbody>
</table>

### FYM Ready Reckoner - Minimum of

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Calculation</th>
<th>Tonnes FYM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole farm stocking rate</td>
<td>(170-WFSR)* Farm Area / 4.5</td>
<td>355</td>
</tr>
<tr>
<td>Chemical N allowed</td>
<td>N Balance /1.35</td>
<td>4090</td>
</tr>
<tr>
<td>Chemical P allowed</td>
<td>P Balance / 1.2</td>
<td>452</td>
</tr>
</tbody>
</table>

In this case it looks as if a max of 313 M3 of cattle slurry can be imported. A safety margin should be built in to cater for the possibility of error. In the plan enter 270 M3 of cattle slurry.

Once the import is entered it is important to check that all 3 limits are being met.

### Step 11 Allocation of Imported Slurry to Index 1 & 2 Soils or avail of Transitional rules for the importation of Pig Slurry

Where slurry allocated to plots which are index 3 or 4 the above calculation will suffice. However if the slurry is to be applied to index 1 and 2 plots the % utilisation of P is considered to go to 50% and this could increase the capacity to import where P allowance is the limiting factor.

To get credit for the allocation of slurry to index 1 & 2 plots:

- Go to the organic Fertiliser page
- Allocate imported organic manures where they will be applied
- Review the outcomes of the records page and reassess the capability to import

**WARNING:** Advice on importation of animal manures need to be computed carefully and reflect the reality of what is happening on the farm. Over importation has led to penalties at farm level.
4. **Doing a quick calculation of N and P allowances**

A quick calculation of the N and P limits on a farm is possible within NMP Online. Please note this does not constitute a nutrient management plan for any compliance purposes.

**Step 1 – Find or Setup Client.**

For Teagasc advisers clients are already on the system. If a client has not got an existing NMP prepared you will need to search the “Agency clients”.

- Change the Clients option to Agency Clients
- Search for farmer name or farmer herd number.
- Select the farmer from the list returned (If list is too long refine search)

![Image showing the NMP Online interface for finding a client]

**Step 2 – Create plan for the farmer**

![Image showing the NMP Online interface for creating a plan]

Click on Create Plan

![Image showing the NMP Online interface for creating a plan]
Complete Mandatory settings as below

Complete Optional settings as below

Complete Units Entry

NB – All optional and Units settings can be changed subsequently by clicking on the Settings symbol (Cog wheel as shown)

The plan is now created
Step 3 Enter Soil Analysis Details

There are a number of scenarios

- Where no soil samples exist the system will assume index 3 for P and K
- Where soil samples exist
  - Tillage Crop areas will need to be individually as the P index system is different for Tillage and Grassland
  - Grassland areas can be grouped into four Soil Samples
  - It is essential to use the naming Dummy so that soil samples can be excluded from consideration as real soil analysis results

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Sample Date</th>
<th>Soil Texture</th>
<th>P</th>
<th>K</th>
<th>Remaining Cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dummy 1</td>
<td>1/1/2018</td>
<td>Loam</td>
<td>2</td>
<td>125</td>
<td>Blank</td>
</tr>
<tr>
<td>Dummy 2</td>
<td>1/1/2018</td>
<td>Loam</td>
<td>4</td>
<td>125</td>
<td>Blank</td>
</tr>
<tr>
<td>Dummy 3</td>
<td>1/1/2018</td>
<td>Loam</td>
<td>6</td>
<td>125</td>
<td>Blank</td>
</tr>
<tr>
<td>Dummy 4</td>
<td>1/1/2018</td>
<td>Loam</td>
<td>9</td>
<td>125</td>
<td>Blank</td>
</tr>
</tbody>
</table>

Step 4 – Enter Land Details

- Enter Plots
  - Enter tillage plots as normal
  - Group grassland plots by P index. For example when grouped if the following is the profile. Index 1 – 10 ha, Index 2 – 12 Ha, Index 3 - 9 Ha, Index 4 – 5ha
  - Enter Grassland plots as follows

<table>
<thead>
<tr>
<th>Plot</th>
<th>Gross Area</th>
<th>Reference Area</th>
<th>Crop 1</th>
<th>Sample</th>
<th>Remaining Cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grass 1</td>
<td>10</td>
<td>10</td>
<td>Grazing</td>
<td>Dummy 1</td>
<td>Blank</td>
</tr>
<tr>
<td>Grass 2</td>
<td>12</td>
<td>12</td>
<td>Grazing</td>
<td>Dummy 2</td>
<td>Blank</td>
</tr>
<tr>
<td>Grass 3</td>
<td>9</td>
<td>9</td>
<td>Grazing</td>
<td>Dummy 3</td>
<td>Blank</td>
</tr>
<tr>
<td>Grass 4</td>
<td>5</td>
<td>5</td>
<td>Grazing</td>
<td>Dummy 4</td>
<td>Blank</td>
</tr>
</tbody>
</table>

Step 5 – Enter Livestock Details

- Enter Animal Information
  - Enter Planned animal information
  - Winter information is not necessary unless you wish to benefit from the allocation to index 1 and 2 areas

Step 6 – Enter Concentrate Details

- Enter Concentrate Feed for the previous year

Step 7 – N & P Limits
The Land and Fert Max page will give the maximum Chemical N and P allowed

**NB – Where Soil analysis exists it is best to complete a full nutrient plan and provide fertiliser advice to farmers**

<table>
<thead>
<tr>
<th>N allowance</th>
<th>(Kgs)</th>
<th>P allowance</th>
<th>(Kgs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum total available N</td>
<td>11,444.6</td>
<td>Maximum total available P</td>
<td>1,439.8</td>
</tr>
<tr>
<td>- Available N produced on holding</td>
<td>977.0</td>
<td>- Total P in manures produced on holding</td>
<td>361.0</td>
</tr>
<tr>
<td>- Available N in manures imported</td>
<td>0.0</td>
<td>+ Manure P not available (applied to index 1 &amp; 2)</td>
<td>0.0</td>
</tr>
<tr>
<td>+ Available N in manures Exported</td>
<td>0.0</td>
<td>- Total P in manures imported</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Maximum Chemical N fertiliser allowed</strong></td>
<td><strong>10,467.6</strong></td>
<td>+ Total P in manures Exported</td>
<td>0.0</td>
</tr>
<tr>
<td>Discounted P in feeds (up to 300Kg)</td>
<td>124.5</td>
<td><strong>Total P in Concentrate feeds used</strong></td>
<td><strong>903.4</strong></td>
</tr>
<tr>
<td>- Net P in concentrate feeds used</td>
<td>124.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>