

DietCheck News

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September, 2009



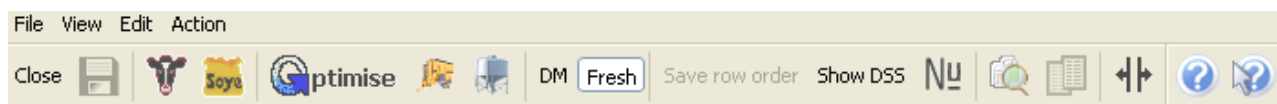
This issue of the Newsletter introduces DietCheck 6.0 which marks a significant step forward in ration formulation packages. As well as improvements to reports, feed library, nutrients, etc. version 6.0 introduces three major additions to ration formulation techniques – “What-If”, Fibre degradation and Growth Rate.

In this issue of DietCheck News

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 - “Farm Forage” now “Farm Feeds”
- New formulation report options
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 - Don’t forget DietCheck on the web

An Introduction to DietCheck 6.0

We believe that DietCheck 6.0 represents a further major breakthrough in practical formulation software.



Existing users will see new, easy to follow, icons guiding them through the program and several major additional program functions. Many functions such as report setup have been enhanced and the program now includes growth rate, fibre degradation rates, and the unique “What-If” system.

“What – If”

There are many potential answers to a particular rationing problem – how much of which feed to include, how to make the best of farm forages, whether a specific feed or supplement will help etc. The aim of any formulation exercise is always to arrive at the ration which fully meets the nutritional needs of the animal at the lowest cost. This means that diets, even if they have been Optimised, will inevitably be altered so that the nutritionist can gauge the effect of possible changes. In the past this has meant it was necessary to remember, or make a copy of, the original diet for comparison.



With DietCheck 6.0 users can now see both the existing diet and the proposed changes side by side on the formulation screen at the same time. A single mouse click will update the ‘Original’ diet at anytime allowing changes to be evaluated step by step.

As shown here not only can the changes to the nutrient supply be seen but the effect of changes on ration cost are clearly visible.

Original		What-If		Original		What-If			
Amount Fed (kg/d)	Cost (£/tonne)	Amount Fed (kg/d)	Cost (£/tonne)	Daily intake	% DM	Requirement	Shortfall/Excess		
Feeds									
Freds 1st cut	30.000	30.000	45.00	DM (kg)	22.8	22.6	21.9	0.7	
Maize Silage -25% Starc	12.000	12.000	50.00	Forage DM (kg)	10.4	10.4			
Straw -Barley	0.250	0.250	50.00	Forage as fed (kg)	42.3	42.3			
Barley	1.500	1.000	130.00	ME (FIM) (MJ)	272.6	275.7	12.20	269.9	5.8
Rapeseed -extracted	2.500	2.500	180.00	ME FIM (%req)	101.0	102.2			
Dairy High Energy 18%	10.000	10.000	280.00	Milk from ME(FIM) (k	35.4	35.9			
A Dairy mineral - 2008	0.150	0.150	650.00	Protein %DM	18.3	18.1			
RP10 - C16 dairy fat	0.000	0.250	600.00	Protein (g)	4158.3	4097.7	18.14		
				MP (FIM) (g)	2513.9	2471.6	10.94	2136.5	335.2
				MP (FIM) (%req)	117.5	115.7			
				ERDP (FIM) (g)	2744.4	2703.1	11.97	2181.6	521.6
				ERDP (FIM) (%req)	123.5	123.9			
				DUP (FIM) (g)	1097.4	1080.9	4.78	745.7	335.2
				DUP (FIM) (%req)	151.9	144.9			
				h (g)	3.32	0.99.0	12		

But that's not all!

One of the potentially most powerful features of DietCheck has always been the milk quality DSS system. This allows rations to be compared and shows the possible effect of nutrient changes on butterfat and protein content and yield.

Milk quality DSS	Percentage (%)	Output per day (kg)
Milk fat	small increase	small increase
Milk protein	moderate reduction	moderate reduction
Milk yield change (current - previous) (kg/d)		-0.73

Previous:

Despite the value of this system, the Milk Quality DSS has been under used because it required a copy of the original diet to act as the “Previous” diet for the comparison. With the “What-If” system within DietCheck 6.0 this comparison is shown automatically and is instantly updated as changes are made to the new diet.

Fat Mobilisation v Growth Rate

There are often discussions about whether or not to include weight change when formulating milking diets, and especially whether any weight loss in early lactation should be included. The DietCheck view is that, as fat mobilisation is inevitable in early lactation, some weight loss should be included. Failure to take account of the energy supplied by fat mobilisation will alter the requirement shown for the energy:protein balance and will increase the required energy density of the diet. The apparent need to feed a higher M/D diet is likely to require increased concentrate use which may compromise rumen function leading to problems with acidosis, reduced feed intake etc.

However, there is another side to weight change and that is the need for continued growth rate – especially in first lactation animals. Growth rate is not merely a change in fat stores (i.e. Body Condition Score) but an increase in body tissue which has a requirement for both energy and protein and this needs to be included in the relevant diets.

To cope with these two separate animal requirements DietCheck now includes two descriptions for weight change.

Weight (kg):	<input type="text" value="650"/>	
Fat mobilisation change (kg/d):	<input type="text" value="-0.50"/>	An allowance for fat mobilisation.
Growth rate (kg/d):	<input type="text" value="0.2"/>	& an allowance for growth

As in the example above a 1st lactation diet may now include both a weight, loss due to fat mobilisation (i.e. condition loss), and also higher requirements for her continued growth.

Forage NDF Degradability & Acidosis

We are all aware of the importance of maintaining adequate fibre levels in diets and that NDF (Neutral Detergent Fibre) is a useful guide as to the amount of “structural fibre” (often thought of as cell walls) in the diet. This allows us to suggest guidelines such as a minimum of 32% total NDF in the diet DM with a minimum 20% NDF from forage. The amount of NDF present in the diet is an important element of the Rumen Stability DSS which, through the Rumen Stability Value (RSV), gives specific messages about the likely effect of the diet on rumen pH. An RSV difference less than +20 predicts low rumen pH and potential problems with acidosis.

This system has proved to be reliable in practice, except when diets are based on very high quality forage. These diets often meet the NDF and RSV criteria but, when fed, often show the characteristics of rumen acidosis such as low butterfat levels and loose dung.

The reason is, of course, that not all NDF is equal in its beneficial effect on rumen stability. For example lush spring grass, or silage made from spring grass, has ample NDF but it is highly degradable so that the volume of the rumen forage mat necessary for effective rumination is reduced. This presents a double challenge to rumen stability as the fibre is fermented to volatile fatty acids more quickly and the amount of buffer from saliva is lower.

DietCheck 6.0 now includes forage NDF degradability values which differentiate between the NDF quality of different forages and their effect on rumen pH.

The potential sub clinical acidosis problems are then highlighted in two ways within DietCheck 6.0:-

1. The degradability of the forage NDF is shown.

Here the total NDF content of the diet is adequate at 33% with 23.1% NDF coming from forage – however, the forage NDF is highly degradable at 72.7% and so may reduce the amount of rumination and associated salivary buffers.

NDF %DM	33.0
NDF from Forage %DM	23.1
Forage NDF deg (%ForNDF)	72.7

2. The degradability of the forage NDF portion of the diet is used within DietCheck 6.0 when the Rumen Stability Value (RSV) is calculated and alters the DSS message shown. With the overall NDF content of 33% and 23.1% NDF from forage the original RSV system would suggest that this diet was unlikely to cause any problems with low rumen pH.

NDF %DM	33.0		
NDF from Forage %DM	23.1		
Forage NDF deg (%ForNDF)	72.7		
RSV	119.7	108.0	11.7

However, with the diet based on high D value (DOMD) grass silage, the highly degradable NDF may result in lower rumen pH. The new DietCheck system takes account of the reduced effective fibre to lower RSV supply and predict a “Serious risk of low pH effects”.

The addition of some straw to the diet reduces the overall forage degradability so that RSV supply increases to the safer level of 25 units above requirement .

NDF %DM	34.7		
NDF from Forage %DM	25.1		
Forage NDF deg (%ForNDF)	67.8		
RSV	133.5	108.0	25.5

It is important to note that the addition of NDF from a non forage source does not alter the forage NDF degradability value and so does not increase RSV supply. This reflects the need to add more structural fibre from forage to maintain rumen stability.

Setting Degradability values

DietCheck 6.0 includes NDF degradability rates for all forages in the main feed library but it is the user’s responsibility to update their own “User Library” feeds and to set the appropriate value when entering forage analysis for farm diets.

Analysis of grazed grass and grass silage data suggests a good relationship between forage NDF degradability and the forage D value shown on most forage reports.

Feed name	Δ	NDF (g)	Forage D value	Forage NDF deg (%)
Grass Silage good -high acid	0	450.00	72.00	70.00
Maize Silage -25% Starch	0	480.00	70.00	63.00
Whole Crop -ferment	0	467.00	0.00	61.00

Entering the D value for grass or grass silage will override the library forage NDF degradability value and this value will be used by the new system.

A similar investigation of maize and whole crop silages showed there was no relationship between forage D value and forage NDF degradability. Therefore, if a D value is entered for maize or wholecrop silages that contain significant levels of starch, the D value will not be used to override the library NDF degradability value.

Please note that the addition of these new nutrients means that existing users will find that their custom settings (nutrient position & nutrients shown), both within screens and reports, will be re-set to the default setting.

Changes to the Rumen Stability DSS Messages

In the original FiM system the RSV gave rise to a series of, sometimes confusing, advisory messages as shown below: –

“Rumen pH no Problem”	All diets with RSV ≥ 20
“Risk of low pH effects”	RSV <20 to ≥ 10
“Serious risk of low pH effects”	RSV <10 to ≥ 0
“Low pH effects likely – modify diet”	RSV <0 to ≥ -5
“Substantial low pH effect likely –modify diet”	RSV < 5 to ≥ -10
“Acidosis modify diet”	RSV < -10.0

Most users would agree that, in practice, this system is too complicated and in general nutritionists have just targeted an RSV > 20 . To better reflect the new RSV values generated by forage NDF degradability within DietCheck 6.0, and in line with practical experience, these messages have been simplified to the following:-

“Rumen pH no Problem”	RSV ≥ 25
“Possible risk of low pH effects”	RSV ≥ 20 to <25
“Serious risk of low pH effects”	RSV < 20

This highlights the potential risk of low rumen pH and the associated risk of acidosis whilst still leaving the final decision as to the suitability of the diet in the hands of the nutritionist.

**Please note that existing diets will not include Forage NDF degradability unless the user adds these values.*

****A technical paper dealing with fibre degradability and the new DietCheck system will shortly be available to download from www.dietcheck.co.uk**

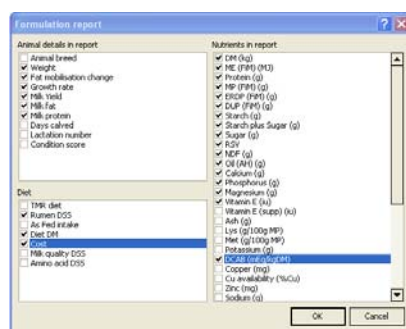
“Extra Nutrients” Available to All Users

As announced in the last Newsletter the “extra nutrients” are now to shown in all versions of DietCheck.

These are as follows:-

- **NDF (Neutral Detergent Fibre) from forage** – This helps judge whether enough functional fibre is present in the diet. Many users target a figure $> 20\%$.
- **Starch plus Sugar** – Used as a measure of the total quickly fermented rumen energy in the diet.
- **Rumen Starch & Bypass Starch** - Calculated using the appropriate rumen outflow rate for the diet in question. Individual starch degradation rates are shown for feeds and these can be entered by the user.
- **DCAB – Dietary Cation Anion Balance** – Shown as mEq/kg DM and mostly used in dry cow diets.

New Formulation Report Options



The Multiple Report was significantly improved in the last program update to allow the user to select the animal details and nutrient values shown on the report. This feature is now available for the Formulation Report allowing the user to choose the information the report contains.

Additional flexibility is possible with the “Copy Report” function that enables reports to be saved as .rtf files. Many DietCheck users already use this feature which allows reports to be edited further as a Word document, or added directly to reports, letters and emails.

“Farm Forage” now “Farm Feeds”

The introduction with DietCheck 5.0 of the ability to save individual forages for individual clients has proved a great help to users. This has meant that forage analysis only needs to be entered once and is then available for any diet, dairy or beef, subsequently formulated for that specific client.

	Farm Feeds	
Maize Silage	18% Blend	C
Maize Silage	1st Cut Grass Silage	C
Maize Stalk	Maize Silage - Big Clamp	C
age average		Cl

Following requests from users we have now upgraded this feature so that any feed group, including concentrates, can be saved in this way.

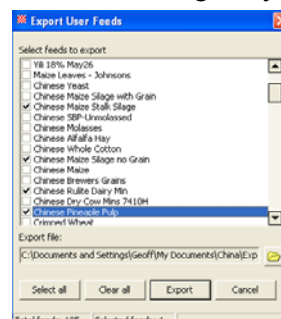
This change gives DietCheck even greater flexibility by combining the benefits of three feed libraries – the Main library (supplied and maintained by DietCheck), the User library (which is built and maintained by the user), and now the Farm feeds library which can store any feed for individual farms.

Feed Library Export/Import

One of the unique features of DietCheck is the ability to create feeds in the user’s own feed library which can then be easily (using email if preferred) exported to other copies of DietCheck. This can be particularly important within companies where their own feeds need to be supplied to all their users and to be regularly, and easily, updated.

Until now it has only been possible to export/import the whole of the User Library. In most cases this system has been adequate but there are times when only a few feeds, or even an individual feed, is needed.

In DietCheck 6.0 it is now possible to either export the whole of the User Library or to choose individually the feeds to be Exported. This can be especially useful for individual advisers, vets and farmers who may need to import specific feeds.



Additions & Changes to the Feed Library

We continually strive to ensure that the DietCheck feed library contains accurate nutrient analysis and as many as possible of the commonly available feeds. The following changes and additions are included in the update to DietCheck 6.0 :-

Changes to all Feed Libraries

- All forages in the main feed library now contain a default value for NDF degradability
- Forage D value has been included as a nutrient. If this value is entered by the user this will be used as the NDF degradation rate when calculating RSV – see above for details.
- Wheat & barley protein updated
- HiPro Soya protein updated
- Urea protein updated
- Palm Kernel mineral analysis updated
- Molaferm 20 analysis updated
- Brewer’s yeast added
- Condensed Distillers Solubles added
- Whey permeate added
- Lupin silage added
- Acid Buff added
- Spring grass added

Changes to the New Zealand Feed Library

- Pumpkin added
- Lupin meal added
- Whey permeate added
- Sodium bentonite added
- Rumifat R100 added
- Tallow added
- Sorghum forage added
- Biscuit meal added
- Sugar added
- Chocolate by-product added
- Whole milk powder added
- Skim milk powder added
- CMS (100%) added
- CMS (50%) added
- SA 65% fishmeal added
- NZ complete dairy mineral added
- Monocalcium phosphate added
- Calcium sulphate added
- Potassium chloride added
- Potassium magnesium sulphate added
- Mono ammonium phosphate added

- **Changes to Worldwide Feed Library**

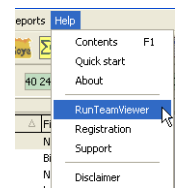
- Canola meal (extracted) name changed
- Canola meal (expelled) added
- Lupin meal added
- Cottonseed meal added
- Whole cottonseed added
- Canola Hay added
- Vetch hay added
- Sesame meal added

Compound Batch Control

Until now users with the Compound Feed formulation option have had to make manual adjustments to min/max feed constraints when changing batch sizes. DietCheck 6.0 allows formulations to be made in any quantity and then scaled to any size of mix using the Optimise function.

Training & Support

The introduction of TeamViewer to allow DietCheck to link up with user's computers wherever they are in the world has proved a great success. In many instances it has allowed support to be provided quickly and efficiently and is yet another benefit of membership of the annual Maintenance & Support scheme. TeamViewer is now supplied as part of the DietCheck program and can be accessed from the Help menu.



Maintenance & Support

The development of DietCheck 6.0, and the enhanced support available through TeamViewer, are just two examples of our commitment to all DietCheck users. As always these upgrades and advantages are available free of charge to all members of the annual Maintenance & Support scheme.

The annual cost of membership (just £250.00 per single copy with discounts for multiple users) represents excellent value and has remained the same for nearly 10 years. It will come as no surprise therefore that these charges are to increase as from 1st January, 2010.

If you are not yet a member of the scheme why not take the opportunity to join before 1st January to benefit from a full year of support at the current charge?

How to Upgrade to Version 6.0

Members of the Maintenance & Support scheme will shortly receive an email with instructions about how to download, and install, the update from the DietCheck website.

If you are not yet a member of the scheme then please contact us by telephone or email to find out how you can upgrade your existing version of DietCheck.

Don't forget DietCheck on the Web

We hope you have found this edition of the Newsletter of interest – please keep visiting the DietCheck website for updates and technical information and, if you have any questions, do not hesitate to contact us.