

Diet Check

Version 6.2

In this issue of DietCheck News

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This Worldwide issue of DietCheck News introduces another major update of DietCheck ensuring it continues to be at the cutting edge of both scientific and practical nutrition. Wherever you are in the world, and whatever feed management system you employ, you will find something in the new version that will help.

Remember, if you are a member of the DietCheck annual Maintenance & Support scheme, all these enhancements are supplied free of charge.

Dry Matter Intake Prediction

In the standard version of DietCheck (UK and Europe) Dry Matter Intake (DMI) is predicted using the model developed by the Feed into Milk (FiM) project. This, fairly complex, equation takes account of the following factors:-

Grass silage intake potential	– predicted by NIRS
Concentrate DM intake	– substitution effect on forage
Concentrate CP content	– higher protein increases intake
Condition score	– higher BCS decreases intake
Weight	– Higher BW increases intake
Milk energy output	– Higher output increases intake
Forage starch content	– Higher values increases intake
Week of lactation	– Intake increases through lactation

Practical experience has shown that this equation accurately predicts the likely changes in DMI as these individual factors alter, but that it may underestimate potential DMI in some situations. As a result, our advice has been that the predicted intake should be regarded as a minimum value. In practice, many users expect an additional 1- 2 kg DMI when designing diets.

However, in many parts of the world – for example where grass silage is not the main forage or where concentrate use is low – this equation is not always reliable. For this reason DietCheck has developed an alternative equation that includes energy concentration to predict intake. This equation has been in use for several years in the New Zealand and Worldwide versions of DietCheck, and has generally been found to be an accurate predictor of DMI in these conditions.

With this in mind, all UK versions of DietCheck 6.2 will include this new calculation in addition to the existing FiM system. Users can view both predictions or choose to show only the FiM value. *Continued.....*

DietCheck on the Web

Keep checking www.dietcheck.co.uk for programme updates and technical articles.

Nutrient name	Daily intake	% DM	Requirement	Shortfall/Excess
DM (kg)	22.7		22.1	0.6
DM DietCheck (kg)	22.7		23.3	-0.6

In the example above, the FiM model predicts the diet exceeds the DMI target by 0.6kg whilst the new approach suggests that the animals may eat an extra 0.6kg. This total difference of 1.2kg is in line with what is often found in practice.

Whichever system you decide to use, remember the prediction in the "Requirement" column is actually a DMI target. Actual intakes should always be monitored after the diet has been introduced.

New Beef/Young stock DMI Equation

It is always difficult to monitor intakes in beef and young stock where groups often contain animals of various sizes. Whilst the original DMI prediction equation used in DietCheck seems to have been accurate with animals at around 350kg live weight, there have been indications that it underestimated intake for both heavier and lighter animals. The new equation, based on NRC 1996, gives a much better indication of intakes over a wider range of live weights.

Environmental Factors

One of the most difficult factors to predict when designing diets is the amount the individual animal will eat. There are many factors that affect DMI and the equations used in DietCheck take account of these and are discussed elsewhere in this Newsletter. However, until now, DietCheck has not been able to take account of any environmental conditions – in particular, temperature and relative humidity which can both affect appetite.

Relative humidity is expressed as a percentage, where 100% equates to the maximum level of moisture in the air at any particular temperature. The hotter the air, the more moisture can be held.

It is well known that high temperatures have an adverse effect on appetite and that this is made worse by high humidity. In the past it has generally been assumed that this is only a problem in areas of the world with a "hot climate". However, the problem actually occurs in more temperate regions such as the UK and NZ. Even at moderate levels of humidity the adverse effect of temperature on intake can start at an average dairy temperature of 16°C and so should be considered at least during the summer period.

Conversely lower temperatures during the winter period will increase appetite. This is undoubtedly one reason why users frequently report that animals eat higher DMI than predicted during this period.

The DietCheck Model

This is based on the proven NRC system with values entered in the Animal screen. The temperature should be the average for the period being considered (a specific day, month, season etc.) and the relative humidity (RH) chosen from one of the three bands offered.

The reason for only allowing a choice of three bands for relative humidity is that not only does the value alter, both day by day and throughout each day, but that it is difficult to establish an accurate value for a specific farm.

Always remember to enter the conditions where the animals are kept, not the general temperatures and humidities of the farm.

Examples of the effect

As stated opposite, even with medium relative humidity, the possible reduction in DMI starts as low as 16°C which is lower than previously thought. With a temperature of 10°C and medium RH intake will be unaffected.

Nutrient name	Daily intake	% DM	Requirement	Shortfall/Excess
DM (kg)	22.7		22.8	-0.1
DM T&H effect (kg)	0.0			

However, if the temperature rises to 20°C then intake could fall by up to 0.7kg/day.

Nutrient name	Daily intake	% DM	Requirement	Shortfall/Excess
DM (kg)	22.7		22.8	-0.1
DM T&H effect (kg)	-0.7		-0.7	

If the average temperature falls to 0 °C then appetite is likely to increase – in this case by around 0.5kg/day.

Nutrient name	Daily intake	% DM	Requirement	Shortfall/Excess
DM (kg)	22.7		22.8	-0.1
DM T&H effect (kg)	0.5		0.5	

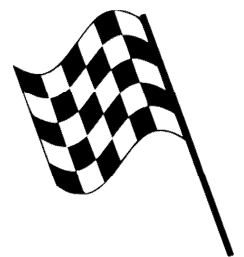
The possible change is displayed for both the FiM and DietCheck DMI calculations. As you would expect, the higher the predicted DMI, the greater the likely effect on intake.

Please note that the predicted DMI shown in the "Requirement" column stays the same and it is left to the user to decide whether to reduce the diet DMI in line with the environmental prediction.

Some Factors to Consider

As with all other factors when designing diets you are only able to work with the average values and these will continually alter. However, the unique "What If" function within DietCheck allows the user to compare the effect of different values.

Not only will this help design the most appropriate ration, it can also help other management decisions. For example, looking at the effect of temperature variations throughout the day can be used to decide on the best times to present feed. Similarly, investigating humidity levels may help decide whether cooling spray systems should be employed.



DietCheck the nutrition system that puts you in control of your feeding decisions

Change to protein terms

There continues to be some confusion about the term ERDP (Effective Rumen Degradable Protein) and its interpretation when formulating dairy diets. The term ERDP describes the amount of microbial crude protein (MCP) produced in the rumen each day either from rumen degradable protein, (shown in the 'MicrobialCP (ERDP)-N row); or rumen degradable energy, (shown in the 'MicrobialCP (ERDP)-E row). As well as a source of nitrogen the rumen microbes need a source of available energy to produce microbial protein.

Protein (%DM)	16.9			16.8	9999
Protein (g)	3832.7	16.86		0.0	9999
MP -N (g)	2648.0	11.65	2345.4	302.6	0.0
MP -E (g)	2421.5	10.65	2345.4	76.0	0.0
MP -E (%req)	103.2				
MicrobialCP (ERDP)-N (g)	2516.2			0.0	9999
MicrobialCP (ERDP)-E (g)	2160.9			2115.5	9999
Microbial CP (%N/E)	116.4				
DUP (g)	1043.9	4.59		996.0	9999

If, as in the example above, *MicrobialCP (ERDP)-N* daily intake is 2516 g/d and the *MicrobialCP (ERDP)-E* intake is 2161 g/d, the model is predicting that there is enough dietary protein to produce 2516 g MCP/d but the dietary energy will only support 2161 g MCP/d.

The microbial production in this diet is therefore limited by rumen energy supply. In order to try and avoid confusion, and to highlight the importance of supplying adequate rumen available energy, the ERDP nutrient name has been changed to:- '*MicrobialCP (ERDP)-N*' and '*MicrobialCP (ERDP)-E*'.

Similarly, the total Metabolisable Protein produced (MP) is now also expressed as "*MP -N*" and "*MP -E*" to reflect the contribution from the rumen relative to Nitrogen and Rumen Energy status. For more detailed information please refer to the "*MP (Dairy)*" section of DietCheck Help.

Navigation: Nutritional Help > Nutrients > Protein > MP (Dairy) >

Microbial CP (Dairy)

- In the FiM system, microbial protein production is calculated from both the amount of dietary rumen nitrogen (N) and then lower value used to estimate (MP) supply.
- DietCheck calculates the yield of microbial crude protein (CP) from dietary DM (i.e. energy as MicrobialCP (ERDP)-E (g/d) and the yield of microbial protein from dietary N (i.e. protein degraded in the rumen as MicrobialCP (ERDP)-N (g/d).

MicrobialCP (ERDP)-E (g)	2072.0
MicrobialCP (ERDP)-N (g)	2450.0
Microbial CP (%req)	118.2

- In most dairy rations, MicrobialCP (ERDP)-E is lower than MicrobialCP (ERDP)-N (as in the example above). Therefore rumen energy supply 'limits' the daily production of microbial protein.



Don't forget that there is a lot more information about this, and many other nutritional terms, available through the Integral Help System within DietCheck shown above.

Make sure that you take full advantage of this valuable resource.

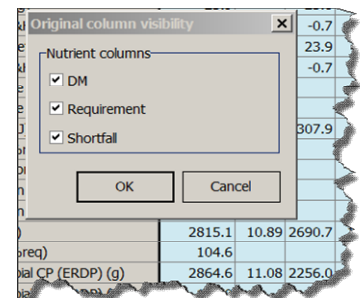
Additions to the "What If" Option

The unique "What If" option introduced with DietCheck 6.0 has been universally acclaimed as a major step forward in ration formulation. It is not surprising that different users have different opinions as to how much information should be shown during this operation.

	Original		What-If			
	Amount fed (kg/d)	Amount fed (kg/d)	Daily intake (% DM)	Requirement	Shortfall	Excess
Feeds						
2nd Cut Grass Sil	12.000	12.000	25.9	23.8	2.0	2.0
Heat Sludge	25.000	25.000	11.1	11.1		
Straw -Wheat	0.125	0.125	37.1	37.1		
Molarm 20	2.000	2.000	309.0	307.9	1.1	1.1
Protected Fat	0.250	0.250	100.4	100.4		
Wheat -crimped	3.500	3.500	45.2	45.2		
Citrus Pulp -dried	1.500	1.500	17.9	17.9		
Rapeseed -extracted	2.250	2.250	4623.3	4623.3		
Soye Hpro	2.250	2.250	2815.1	10.89	2690.7	124.4
18% Dairy Cake	6.000	6.000	104.6	104.6		
Maize Mineral	0.150	0.150	2864.6	11.08	2256.0	608.5
Microbial CP (ERDP) (g)			127.0			
Microbial CP (ERDP) (%req)			1376.9	5.33	1252.5	124.4
DUP (g)			109.9			
DUP (%req)			3804.4	14.71	3804.4	14.71
Starch (g)			14.7			
Starch (%DM)			3178.6	12.29	3178.6	12.29
Rumen Starch (g)						

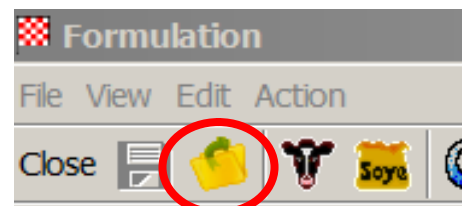
With this in mind version 6.2 has extra columns so that "Daily Intake", "% DM", "Requirement" and "Shortfall / Excess" can all be shown for both the original and "What If" diets.

However, by clicking the right mouse button, the user is able to turn these extra columns both on and off keeping the minimum information on the screen as required.



Once selected, the layout will become the default, but can be altered again at any time.

Saving Diets Made Easier



It has always been possible to easily save updates to diets as you work, but if the user wants to keep the original (starting) diet, a copy had to be made before any changes and then the new diet saved.

DietCheck 6.2 has a new "Save As" button that saves a copy of the current diet complete with any changes that have been made whilst keeping the original diet in its original form.

This is in line with the way programmes such as Microsoft Word operate, and so should be familiar to most users.

DietCheck on the Web

Keep checking www.dietcheck.co.uk for programme updates and technical articles.

Improved Compound Formulation Screen

The ability to change between Fresh "as fed" and Dry Matter has been improved and made more logical within the compound formulation screen.

When Fresh is selected, the feed inclusions, cost per tonne, and the minimum and maximum inclusions entered will all be shown on an "as fed" basis. When Dry Matter is chosen then the feed inclusions will change to the DM basis but the cost and min's/max's will remain on an "as fed" basis. The inclusion of any feed can be changed whilst in DM but the cost and min/max constraints can only be altered on an "as fed" basis.

This is logical because raw materials are always included, and the price of each feed considered, on an "as fed" basis.

The nutrient analysis changes between Fresh and DM and the Min/Max values can be set for Optimise either on a Fresh or DM basis. Again this is logical because, for example, a dairy mix may be formulated to a protein % as Fresh but the target ME is often considered on a DM basis.

New Compound Reports

As well as being used as a record of a "compound" mix that has been formulated for a mill, or blend plant, the Compound Report is used for on farm concentrate premixes. In this case it is not necessary to show all the nutrients involved or the range of feed ingredients used in an Optimised formulation.

In DietCheck 6.2 the user is able to select the number of nutrients to include in the report.

The report no longer includes the minimum and maximum values offered for each feed ingredient making the report easier to read and implement.

Diet name:	China PreMix 2	
Batch size (kg):	1000	
Cost (£/tonne as fed):	0.00	
Feeds		
	Inclusion (kg as fed)	
Rapeseed -extracted	160.00	
Lupin -whole	250.00	
RP10 - C16 dairy fat	50.00	
Barley	475.00	
Molasses (Beet)	40.00	
Dairy mineral	25.00	
Total = 1000.00		
Nutrients		
	Analysis (kg as fed)	Analysis (kg DM)
DM (g)	881.5	1000.0
ME (MJ)	12.5	14.1
Protein (g)	186.6	211.6
ERDP (FiM) (g)	133.6	151.6
DUP/MPB (FiM) (g)	43.3	49.1
MPE (FiM) (g)	91.3	103.5
MPN (FiM) (g)	128.5	145.7
Starch (g)	240.8	273.1
Rumen Starch (g)	200.8	227.8

Additions to the TMR report

In the last major programme update the TMR report was enhanced by allowing both the size of the mixer and the animal batch size to be entered. In DietCheck 6.2 the report has been further enhanced.

Feed name	Amount f	Cost (£)	DM (g)	Fresh
Citrus Pulp -dried	1.500	160.00	882.00	
Protected Fat	0.250	450.00	950.00	
Wheat -c				0.00
Maize Mineral	0.150	650.00	980.00	
Rapeseed -extracted	2.250	180.00	900.00	
Soya -Hipro	2.250	200.00	886.00	
18% Dairy Cake	6.000	200.00	896.19	

Before saving the premix (TMR) the user is able to change the order in which the feeds will show in the report. In this way the report can show the all important loading order, to the mixer operator.

In addition, the report shows the cumulative amount needed in the mixer after the addition of each separate feed. Again making it easier for the operator and helping to enhance accuracy.

The new report continues to show a limited range of nutrient values for the mix both in "as fed" and "dry matter".

TMR name: Early Lact TMR	Mixer size (kg): 6000				
Cost (£/tonne Fresh): 97.5	Cost (£/tonne DM): 186.3				
Number of animals in the group: 100					
Feeds (Fresh)					
	kg/head/d	Mix (%)	Mix (kg)	Group (kg)	Accumulation
2nd Cut Grass Sil	12.00	21.8	1308.5	1200.0	1200.0
Maize Silage	25.00	45.4	2726.0	2500.0	3700.0
Straw -Wheat	0.13	0.2	13.6	12.5	3712.5
Molafem 20	2.00	3.6	218.1	200.0	3912.5
Protected Fat	0.25	0.5	27.3	25.0	3937.5
Wheat -crimped	3.50	6.4	381.6	350.0	4287.5
Citrus Pulp -dried	1.50	2.7	163.6	150.0	4437.5
Rapeseed -extracted	2.25	4.1	245.3	225.0	4662.5
Soya -Hipro	2.25	4.1	245.3	225.0	4887.5
18% Dairy Cake	6.00	10.9	654.2	600.0	5487.5
Maize Mineral	0.15	0.3	16.4	15.0	5502.5
Total	55.03	100.0	6000.0	5502.5	
Nutrient			Fresh (kg)	DM (kg)	DM (%)
DM (g)			459.89	1000.00	100.0
ME (MJ)			5.62	11.95	-
Protein (g)			84.02	178.81	17.9
NDF (g)			154.24	329.24	32.8
Starch (g)			69.14	147.14	14.7
Sugar (g)			47.91	101.96	10.2
Oil (AH) (g)			22.66	48.22	4.8

Things you should know about 6.2.....

Premix Editor

Previously, when using the "On Farm Premix" editor, after you created a premix and subsequently changed the amount of premix fed, the amounts reverted back to their original levels when you restored the individual feeds. Now DietCheck restores the feed ingredients on a "Pro Rata" basis thus not altering the diet composition.

The Premix Editor now also shows the "Amount fed (kg)", either in the Dry Matter or on an "as fed" basis as well as % in the mix.

Feed name	Amount fed (kg/d)	Fresh %
Dairy mineral	0.150	0.32
Maize Gluten Feed	2.000	26.38
Rapeseed -extracted	2.022	17.78
S.B.F.	2.000	26.38

Screen Layouts

With previous updates users found that, "post upgrade", their saved layouts in all screens reverted back to the default. Now, in version 6.2 your saved layouts will be preserved. Any new fields will be added to the right, or bottom of the screen depending on orientation, **so don't forget to look out for them!** This saves having to recreate your preferred layouts each time.

DietCheck on the Web

Keep checking www.dietcheck.co.uk for programme updates and technical articles.

New and updated feeds analysis for version 6.2

As part of DietCheck's continual development we try to keep up-to-date with the ever increasing list of feed materials that are available in the market place. The feeds listed below have either been added or amended since the last version.

United Kingdom

<u>Feed</u>	<u>Status</u>
Acid Buff	Updated
Dist. Grains Wheat (Ensus)	New
Trafford Gold	Updated
Rapeseed (Heat Treated)	New
Sugar Beet (pressed)	Updated
Triticale	New
Barley (caustic)	New
Wheat (crimped)	New
Maize (crimped)	New

New Zealand & World Wide

<u>Feed</u>	<u>Status</u>
Corn Distillers Solubles	New
Fodder Beet Tops	New
Fodder Beet	New
Barley (caustic)	New
Wheat (caustic)	New
Whole Crop Wheat (Urea)	New



DietCheck On-site & On-line Training

We are often asked to run training courses to cover both ruminant nutrition and the practical use of the DietCheck program. Whenever we hold such training, delegates report that they have found the investment in time and effort extremely worthwhile and often look for follow up sessions.

However, we understand that in these pressurised times it is becoming increasingly difficult to justify the time, and cost, involved in travelling to meetings. With this in mind DietCheck has invested in a system that allows training to be delivered directly to your computer with discussion either via the telephone or (a better option) over Skype. The training can be on a "one to one" basis or to a group of people who can all be located in different locations at their own computers.

Training Presentations

During a training session the delegate(s) will see everything shown on the tutor's computer including PowerPoint presentations, working DietCheck formulations, etc. Delegates will be able to interact and question throughout the presentation just as if they were in a normal training venue.

Individual Support

In addition to training, the system can be used in an advisory capacity on a one to one basis where DietCheck takes control of the delegate's computer and can be used to both demonstrate, and work with, the user's diets. This option can also be used to help solve any DietCheck related computer problems.

You Choose the Training you Need

Training can be customised to suit individual requirements but the following basic sessions are available:-

- * Introduction & guidance for using DietCheck
- * Basic through to advanced nutrition
- * Feeding the high production dairy cow
- * Using nutrition & DietCheck as a sales tool
- * Optimise – getting the best from least cost formulations
- * Nutritional Consultancy – advice re specific diets

DietCheck Version 4 no longer supported

Unfortunately, it will no longer be possible to support DietCheck 4 (originally launched during February 2007), after 1st January, 2011. This means that if you are still using this version of DietCheck after this date, we will not be able to issue replacement licences, deal with computer matters, resolve database problems, etc.

Special Offer!!

We are offering version 4 users one last opportunity to upgrade to version 6.2 at a substantial discount, providing they join the annual Maintenance & Support scheme at the same time. Please contact the DietCheck office either by telephone or email to find out the cost of upgrading your version(s).

DietCheck Maintenance & Support

All of the enhancements outlined above are available **free of charge** to all members of the annual Maintenance & Support scheme along with first class programme support. If you are a DietCheck user and not yet a member please contact the office, by telephone, email or through the website for further details.

Compatibility— Dietcheck 6.2 is compatible with all Microsoft supported operating systems including Windows 7.

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