# TAURUS

Least Cost and Ration Analysis Programs
for Beef Cattle
Version Number 2014
Regional Software Dissemination Site: USA

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# How to Install?

1.  Insert the Taurus CD into the CD-Rom drive.
2.  Using your Windows Explore, navigate to the CD and you will see a file called Setup.exe:

    
    **Setup.exe**

3.  Double click Setup.exe. The Welcome dialog box appears:
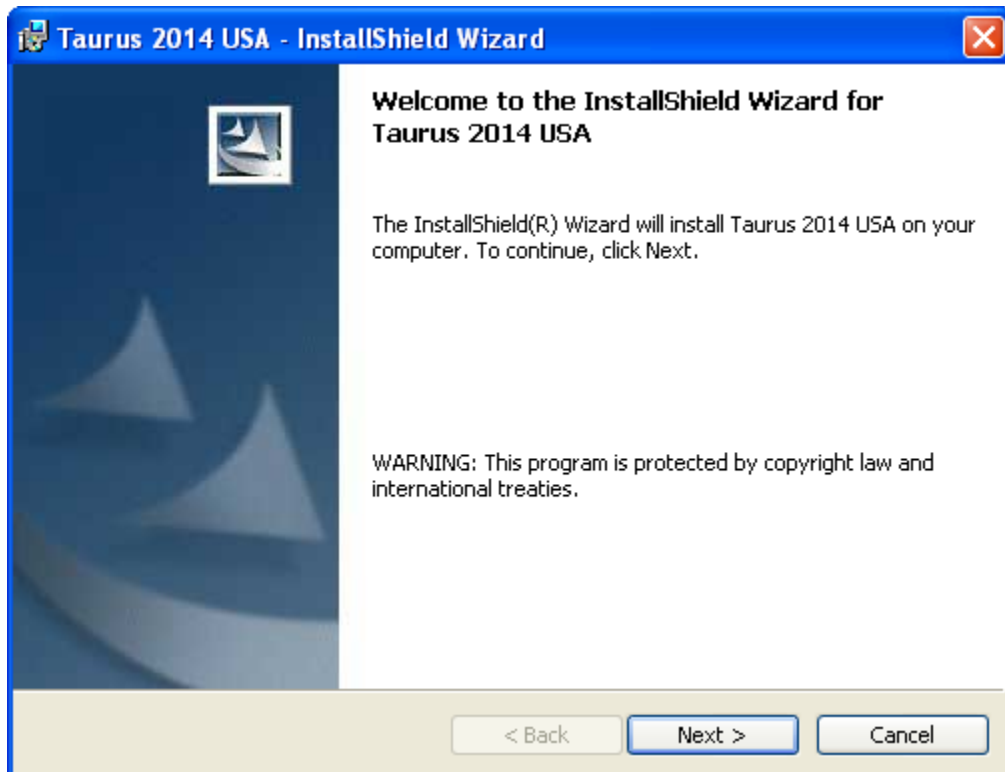


Clock the Next button.

4. The License Agreement dialog box appears:
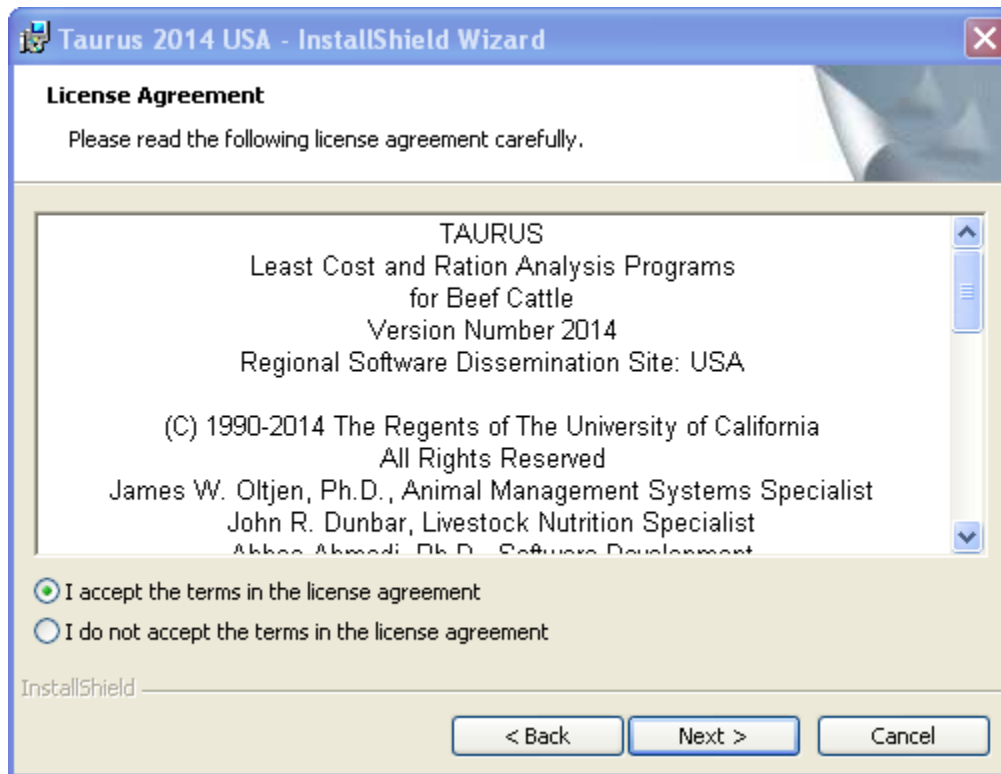


Accept the terms in the license agreement and click the Next button.

5. The Customer Information dialog box appears:
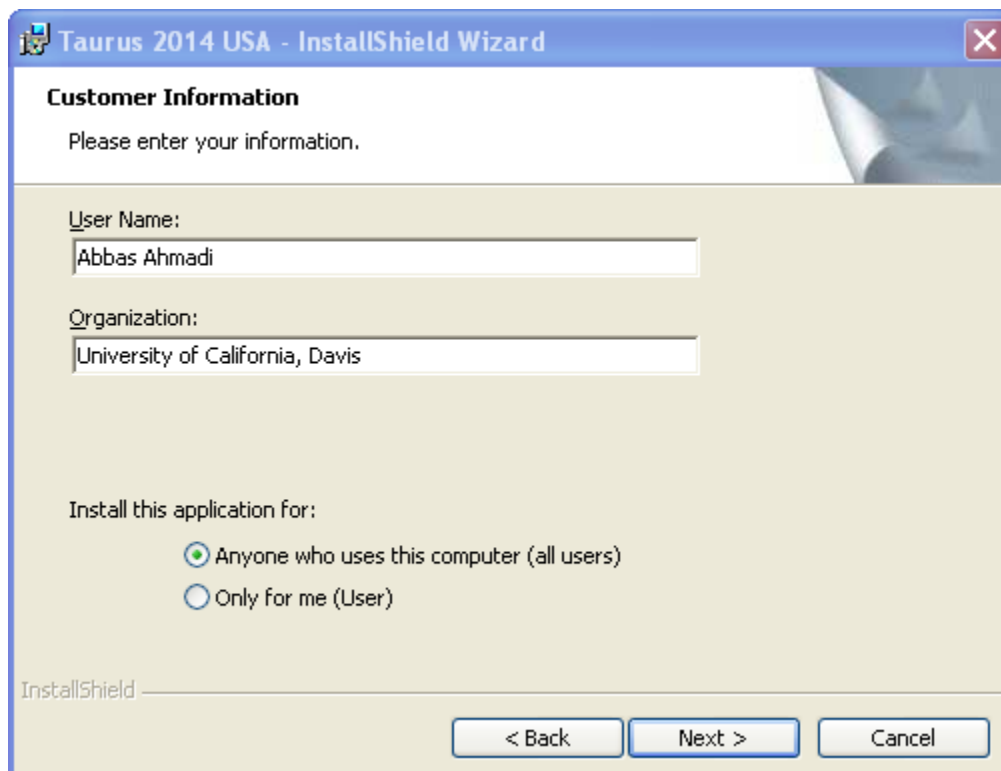


Enter your name and your organization and click the Next button.

6. The "Ready to Install the Program" dialog box appears:
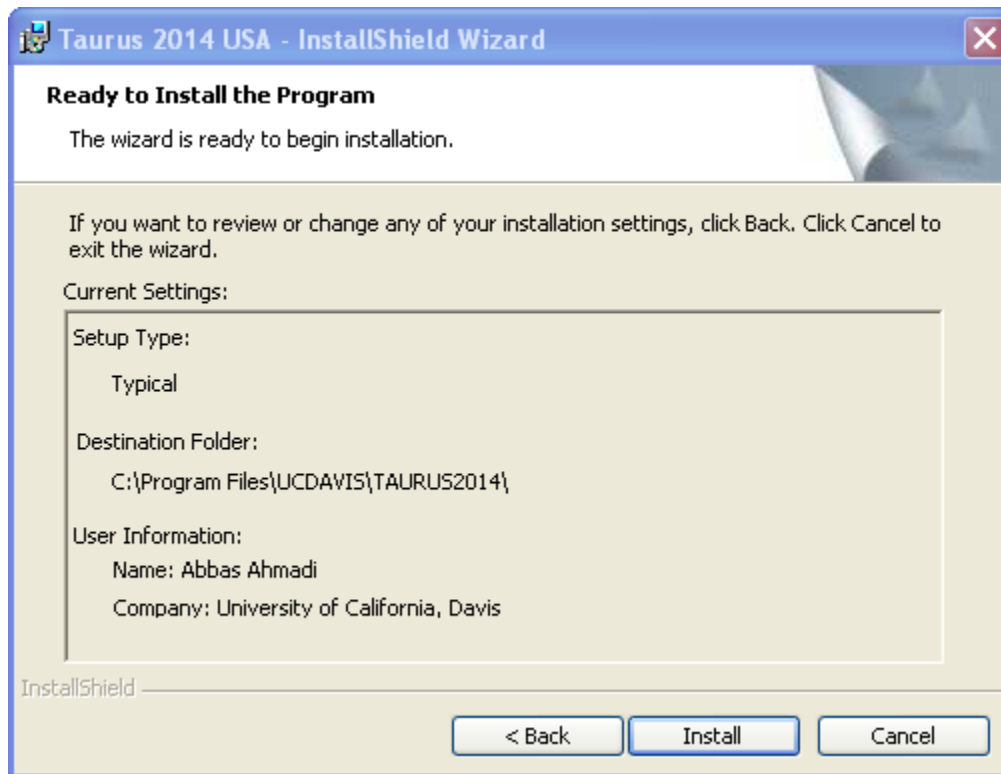


Click the Install button.

7. The wizard will install the Taurus program on your computer. It may take SEVERAL minutes:
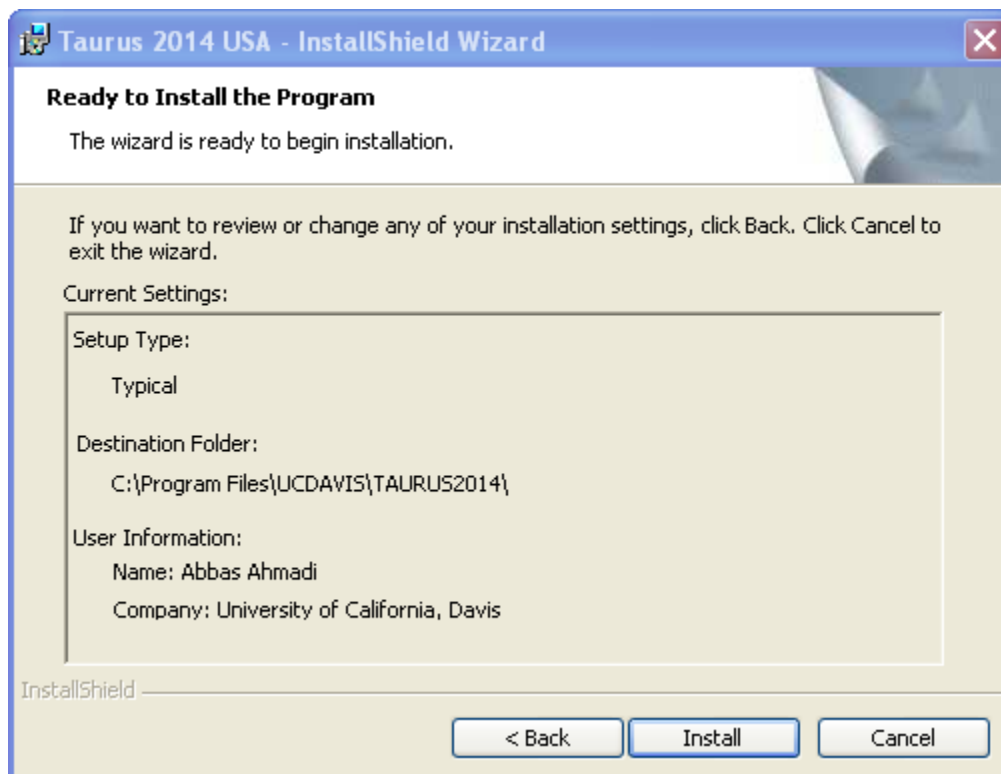
8. Finally, the final dialog box appears:
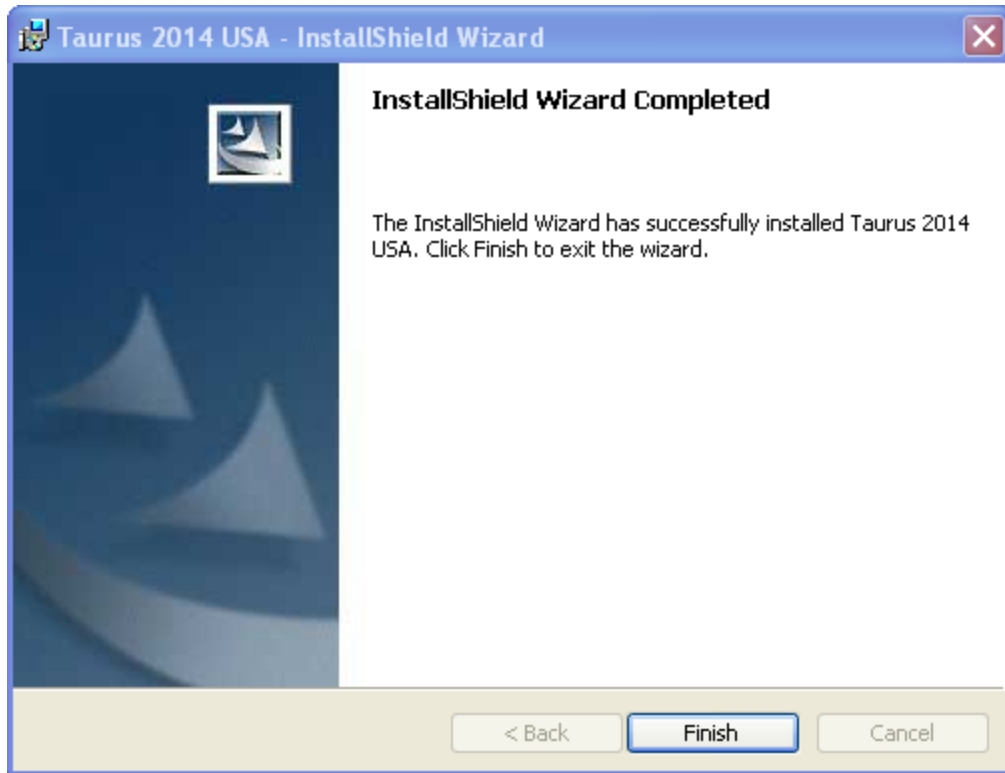


Click the Finish button. The wizard finishes the installation and will place a shortcut to Taurus on your desktop. It also adds the Taurus to your program menu.

9. It will create a folder called **"C:\Program Files\UCDAVIS\TAURUS2014\"** and will place the **taurus.exe** file plus the **demo.tau** ration file in that folder

## Taurus folder

All Taurus files are stored in the following folder:
**C:\Program Files\UCDAVIS\TAURUS2014\**

## Ration Files

All Taurus ration files have the .TAU extension and are stored, by default, in the above folder.

## Feed Library Files

There are four feed library files:  (1) TAUSTD.DBF, standard feed library; (2) TAUALT.DBF,  alternate feed library; (3) TAUGRP.DBF, feed group library; (4)TAUINF.DBF, infeasible feed library. These files are stored in the **C:\Program Files\UCDAVIS\TAURUS2014\** folder.

## Taurus Manual

The Taurus manual, Taurus.pdf, is stored in the Taurus folder. To view and print this file, you need Adobe Acrobat Reader. You can get a free copy of this software by visiting the following web site:
http://www.adobe.com/products/acrobat/readstep2.html

The Taurus order form, OrderForm.pdf, is also in the same folder

# How to Run?

1. Click the Start button and then choose the "All Programs". A menu list appears.
2. Choose the "UCDAVIS" option.  A sub-menu appears.
3. Choose the "TAURUS2014" option. Another sub-menu appears. Choose the "Launch Taurus.exe" option. The sign-on banner of Taurus appears. Click the OK button. The main menu of Taurus appears:



Choose the "Least Cost Ration: Growing or Finishing Cattle" option. The Animal Information dialog box appears:

4. Animal Information dialog box:



From the "Files" menu, choose the "Open" option. Navigate to C:\Program Files\UCDAVIS\TAURUS2014\ folder. Open the Demo.Tau ration file.

Click the [>] (Next Button). The Nutrient Constraints dialog box appears.

5.  The Nutrient Constraints dialog box:



Here you can click the "ReCalc" button to populate this dialog box with a set of default constraints. You can add, delete or modify any or all of these constraints.

After you are done. Click the Next button. The Feed List Dialog box appears.

6. The Feed List dialog box:

```
TAURUS 2014 USA [LC_G]                                                    ✕

 FEED LIST:
    LIB   FEED                      PRICE   MINIMUM         MAXIMUM
    Code  No.   Name                $/ton   Amount Unit     Amount Unit

    STD    18   ALFALFA mid bloom   125.00  0.0000          0.0000          ▲
    STD    30   ALMOND hulls 15% CF  75.00  0.0000          0.0000
    STD   154   BUCKWHEAT grain     100.00  0.0000          0.0000
    STD   162   CALCIUM phos di     480.00  0.0000          0.0000
    STD   231   CORN grain flaked   120.00  0.0000          0.0000
    STD   267   FAT animal hydrol   240.00  0.0000          0.0000
    STD   383   MOLASSES cane        80.00  0.0000          0.0000
    STD   399   OAT hay dough stage 100.00  0.0000          0.0000
    STD   430   OYSTERSHELL ground  100.00  0.0000          0.0000          ▤
    STD   563   RICE hulls            0.00  0.0000          0.0000
    STD   675   UREA 45% nitrogen   240.00  0.0000          1.0000 %DM
    STD   692   WHEAT grain SRW     125.00  0.0000          0.0000
           0                          0.00  0.0000          0.0000
           0                          0.00  0.0000          0.0000
           0                          0.00  0.0000          0.0000
           0                          0.00  0.0000          0.0000
           0                          0.00  0.0000          0.0000
           0                          0.00  0.0000          0.0000
           0                          0.00  0.0000          0.0000
           0                          0.00  0.0000          0.0000
           0                          0.00  0.0000          0.0000
           0                          0.00  0.0000          0.0000          ▼

 Files    <   Go to   >      Feed Analysis  Add  Delete  Edit  Price Unit  Help      Formulate   Main Menu
```

You can add, edit, or delete feeds. You can specify feed price and assign a min or max amount on a feed. You cam also edit the nutrient analysis of a feed. These changes remain local to this ration file and will not reflect back to feed libraries. After you are done, click the Next button. The Group Constraints dialog box appears.

7. The Group Constraints dialog box:



you can specify a min or max for feed groups. When you are done, click the next
button. The Ratio Constraints dialog box appears. .

8. The Ratio Constraints dialog box:
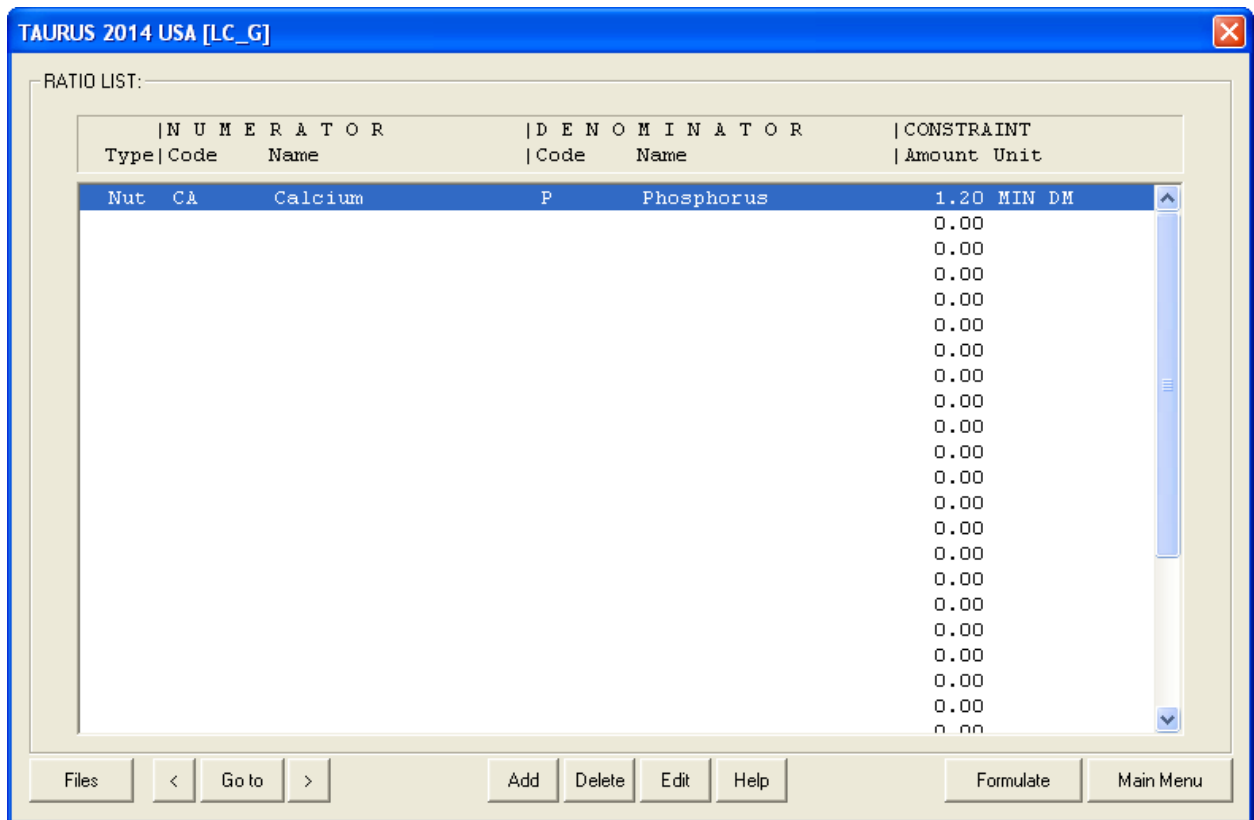


You can specify a min or max to the ratio of any two nutrients, or any two feeds, or any two feed groups.

When you are done click the Formulate button. The program will enter the formulation mode and will formulate the ration and will show the output dialog box.

9. The Output Screen

```
TAURUS 2014 USA [LC_G]                                                        ☒

┌─OUTPUT─────────────────────────────────────────────────────────────────────
│                        California Beef Cattle Ranch
│                     One Shields Avenue, Davis, CA 95616 USA
│             Phone:(530)752-1278 FAX:(530)752-0175 http://animalscience.ucdavis.edu
│
│       C O S T ,   P E R F O R M A N C E   A N D   M E T H A N   E M I S S I O N
│      Starting Weight, lb .............       700.00
│      Ending Weight, lb ...............      1100.00
│      Average Weight, lb ..............       900.00 (DM Intake 2.16% of Body Wt)
│      Days on Feeding Phase ...........       335.91
│
│                                        Whole Phase     Per Day    Per lb of Gain
│      Gain, lb .......................       400.00        1.19        -----
│      Feed Intake, DRY MATTER, lb .....     6523.79       19.42        16.31
│      Feed Intake, AS FED, lb .........     7148.96       21.28        17.87
│
│      Feed Cost, $....................      229.09        0.68         0.57
│      Overhead Cost, $................       67.18        0.20         0.17
│      Feed & Overhead cost, $.........      296.27        0.88         0.74
│
│      Feed Cost:     64.09 $/English ton AS FED
│
│     ┌─────────────────────────────────────────────────────────────────┐
│     │ Methane Emission:      9.45 MJ/day                                │
│     │ Methane Emission:      2.26 Mcal/day                              │
│     │ Methane Emission:    169.98 g/day                                 │
│     │ Methane Emission:      8.75 g/lb Dry Matter Intake                │
│     │ Methane Emission:      5.94 pct Gross Energy Intake (Normal range 2-12:│
│     │ 3.5 Extremely Good, 4.5 Very Good, 5.5 Good, 6.5 Average, 7.5 Bad,│
│     │ 8.5 Very Bad, 9.5 Extremely Bad)                                  │
│     └─────────────────────────────────────────────────────────────────┘
│
├──────────────────────────────────────────────────────────────────────────
│  Files    <   Go to   >      Combine  DM Basis  Feed Group  Help    Input  Main Menu
```

By clicking the Next button you can view the following screens:
Cost, Performance, and Methane Emission
Ration Composition
Price Ranges / Feeds Not Used
Nutrient Analysis Detailed information about feeds

You can also view the results for all feeds or for a specific feed group on 100% DM basis or on AS Fed basis.

You can also print the output or go back to the input screens and modify some entries and re-formulate the ration.

# COFIGURATION AND CUSTOMIZATION

The Taurus program has four configuration files:

1. COMPANY.CFG   To configure the heading for all printouts.
2. TAUSETUP.CFG  To configure user-defined nutrients.
3. PPIMPLAN.CFG  TO configure implant effects in Profit Projection module.
4. PPCLSOUT.CFG  To configure the format of the closeout report in Profit
                 Projection module.

WARNING  WARNING  WARNING  WARNING  WARNING  WARNING  WARNING  WARNING!!!

Please copy these files in another folder, such as C:\BACKUP\ as backup. This is very important. Because if you mess up any of these configuration files, you will be able to restore them by copying the configuration files from the backup folder onto the main folder for this application.

DO NOT EDIT ANY OF THESE CONFIGURATION FILES WITHOUT MAKING BACKUPS!!!!!!

## 1. COMPANY.CFG
--------------------
This file is used to configure the heading for all printouts. This is a text file. It is located in the main folder for this application. Do not use Microsoft Word to open this file. Use Notepad program to edit it. This file has originally the following content:

```
+-----------------------------------------------------------------------------+
|                         California Beef Cattle Ranch                         |
|                      One Shields Avenue, Davis, CA 95616                     |
|    Phone:(530)752-1278 FAX:(530)752-0175 http://animalscience.ucdavis.edu    |
|                                                                             |
+-----------------------------------------------------------------------------+
```

This file has exactly four lines. Each line has exactly 78 characters. The first line shows the name of your company. The second line shows your address. The third line shows your phone, fax, email, and web address. The fourth line must be blank to keep a blank line between the heading and the body of printouts. Use space bar to center the text. Do not use tab.

You must re-start the program for your modification to take effect.

## 2. TAUSETUP.CFG
---------------------
This file is used to configure user-defined nutrients. This is a text file. It is located in the main folder for this application. Do not use Microsoft Word to open this file. Use Notepad program to edit it. This file has originally the following content:

```
+-----------------------------------------------------------------------------+
|*COMMENTS                                                                     |
|The NUTIENTS section has four columns: NO, CODE, NAME, and CLASS:             |
|                                                                             |
|NO   - Maximum width of this column is two digits. Do not change these       |
|       numbers: 43, 44, 45, and 46.                                          |
|CODE - Maximum width of this field is four characters. User upper case       |
|       letters. Enter an abbreviation for your nutrient, for example         |
|       IRON or PROT                                                          |
|NAME - Maximum width of this column is 12 characters. Enter a description     |
|       for your nutrient.                                                    |
|CLASS - Maximum width of this column is one digit. Enter a number between    |
|       1 and 5 in this field to specify the unit for your nutrient. The      |
|       class of a nutrient can be be one of the following:                   |
|         1 = {%}                                                             |
|         2 = {Mcal/lb  or  Mcal/kg}                                          |
```

```
|           3 = {IU/lb     or   IU/kg  }                                    |
|           4 = {ppm}                                                       |
|           5 = {Unit/lb   or  Unit/kg}                                     |
|           6 = {k IU/lb   or  k IU/kg}                                      |
|There should be  a comma between columns and all values must be aliened.   |
|                                                                           |
|The PAGE EHEADING section has a single line. The maximum width of page     |
|heading is 31 characters. Enter a description for your user-defined        |
|nutrients.                                                                 |
|                                                                           |
|*NUTRIENTS                                                                 |
|NO CODE NAME          CLASS                                                |
|==,====,============,=                                                     |
|43,NUT1,User Nut 1  ,1                                                     |
|44,NUT2,User Nut 2  ,1                                                     |
|45,NUT3,User NUT 3  ,1                                                     |
|46,NUT4,User NUT 4  ,1                                                     |
|                                                                           |
|*PAGE HEADING                                                              |
|7. User-defined Nutrients                                                  |
+---------------------------------------------------------------------------+
```

This file has three sections: COMMENTS, NUTRIENTS, and PAGE HEADING. The Comments section shows how to modify the other two sections. You must re-start the program for your modification to take effect.

## 3. PPIMPLAN.CFG
--------------------
This file is used to configure implant effects in Profit Projection module. This is a text file. It is located in the main folder for this application. Do not use Microsoft Word to open this file. Use Notepad program to edit it. This file has originally the following content:

```
+---------------------------------------------------------------------------+
|0, -14, -8                                                                 |
|1, -12, -7                                                                 |
|2,  -9, -6                                                                 |
|3,  -6, -4                                                                 |
|4,  -3, -2                                                                 |
|5,   0,  0                                                                 |
|6,   1,  1                                                                 |
|7,   2,  2                                                                 |
|8,   3,  3                                                                 |
|9,   4,  4                                                                 |
+---------------------------------------------------------------------------+
```
The PPIMPLAN.CFG file consists of three columns and 10 rows of information.

The first column contains a scale of 0-9, 5 being the NRC standard.  Any number below 5 will reduce intake and gain.  Any number above 5 will increase intake and gain.

The second column has the intake adjustments (for example, -14% adjustment for those non-implanted animals, or with "0" implant).

The third column is the maintenance requirement adjustment (for example, the same non-implanted animal, would be adjusted -8% maintenance requirement.

For those of you who do not find these predefined adjustments appropriate, by changing the numbers in the intake and maintenance adjustment columns, the program will use the adjustments that you specify in this file. You must re-start the program for your modification to take effect.

## 4. PPCLSOUT.CFG
--------------------
This file is used to configure the format of the closeout report in Profit Projection module. This is a text file. It is located in the main folder for this application. Do not use Microsoft Word to open this file. Use Notepad program to edit it.

This file has originally the following content:

```
+-----------------------------------------------------------------------------+
|A. PURCHASES                                                                 |
|1                                                                            |
|21                                                                           |
|2                                                                            |
|5                                                                            |
|30                                                                           |
|                                                                             |
|B. PERFORMANCE                                                               |
|2                                                                            |
|6                                                                            |
|7                                                                            |
|8                                                                            |
|9                                                                            |
|10                                                                           |
|11                                                                           |
|12                                                                           |
|                                                                             |
|C. COSTS                                                                     |
|21                                                                           |
|25                                                                           |
|13                                                                           |
|14                                                                           |
|15                                                                           |
|16                                                                           |
|17                                                                           |
|18                                                                           |
|26                                                                           |
|                                                                             |
|D. INTERESTS                                                                 |
|22                                                                           |
|23                                                                           |
|24                                                                           |
|                                                                             |
|E. SALES                                                                     |
|3                                                                            |
|4                                                                            |
|19                                                                           |
|20                                                                           |
|                                                                             |
|F. PROFIT/LOSS/BREAKEVEN                                                     |
|19                                                                           |
|26                                                                           |
|27                                                                           |
|28                                                                           |
|29                                                                           |
+-----------------------------------------------------------------------------+
```

Save a copy of the current configuration file (PPCLSOUT.CFG) under a different name
(i.e. PPCLSOUT.OLD) this way if you make a mistake with the new configuration, you can
just copy the PPCLSOUT.OLD into PPCLSOUT.CFG and define the new configuration one more
time.

The configuration file consists of item numbers with optional headings. For example, a
number 2 on a line by itself instructs the program to print the item number 2 on that
same line. Item number 2 is Cattle cost, $ (at auction, etc). If you put number 22 in
the next line, this would force the program to print item 22 on the next line, which
is Interest on cattle, $.

The following list shows a list of 29 line items. Each line item consists of a number,
a description, and two values; one for Total/Lot and the second for Average/Hd.

```
                                       Total/Lot        Avg/Hd
----------------------------------------------------------------
1   Pay-weight, lb(at auction, etc)     225000.00        450.00
2   Cattle cost, $ (at auction, etc)    213750.00        427.50
3   In-weight,  lb(upon arrival at lot)  205000.00        410.00
4   Transit shrink, %                                      8.89
5   Feedlot death loss, %                                  1.80
6   Finish-Wt, lb (without  4% shrink)   565120.45       1150.96
7   Net gain, lb (PayWt to PayWt  )      317515.63        646.67
8   Total head.days & Avg days-on-feed   135185.00        275.33
9   ADG, lb                                                2.35
10  Total feed as fed, lb               2044924.92       4164.82
11  Daily feed as fed                  7427.29 lb/day  15.13 lb/hd.day
12  Feed efficiency, lb as fed/lb gain                     6.44
13  Feed costs, $                        142537.82        290.30
14  Feed costs per lb gain, $/lb                           0.45
15  Medical charges, $                     7500.00         15.27
16  Other feedlot costs, $                 1693.95          3.45
17  Total feedlot charges with interest,$ 156721.59        319.19
18  Feedlot cost of gain, $/lb                             0.49
19  Total sale, $                        401461.57        817.64
20  Average sale price, $/cwt               74.00
21  Laid-in costs, $                     227270.00        462.87
22  Interest on cattle, $                 10087.83         20.55
23  Interest on feedlot, $                 4989.82         10.16
24  Interest (cattle+feedlot), $          15077.65         30.71
25  Total costs (with all interests), $  394079.42        802.61
26  Profit/(Loss), $                       7382.14         15.03
27  Breakeven sell, $/cwt                                 72.64
28  Breakeven buy, $/cwt                                 102.76
29  Out-Wt, lb (with  4% shrink)         542515.63       1104.92
```

Select the numbers from this list and type them in the PPCLSOUT.CFG file. By rearranging item numbers you can create your own groups of items. You can also type optional headings for each group of items.  These headings should not start with a number. Use letters such as A, B, C, D, E, of F to start the headings. For example, A. PURCHASES

Note – If you do not have a configuration file (PPCLSOUT.CFG) the program lists items 1-29 in ascending order as it is shown in the above list.

You must re-start the program for your modification to take effect.

# PRINTOUTS

The program creates various text files for printouts. Although these are not used in configuration or customization of the program, but you can open them in your text editor and reformat and print them as you wish. These files will be constantly overwritten by the program, so save them under different names to keep them from being overwritten by the program.

You can use a text editor, such as notepad or Microsoft word to open these text files. Please, Use "Courier New" font to keep the spacing and alignment. Do not use "Times New Roman" or "Arial" or any other font.

## Printout for Ration Formulation and Devaluation
---------------------------------------------
Each time you print the formulation or evaluation of a ration, the program creates a text file which contains the same information as in the printout. This text file is called PRINTOUT.TXT and is located in the main folder of the application.

## Printout for Loading and Unloading
----------------------------------
Each time you run the delivery module and print the output, the program creates a series of text files, which contain the same information as the printouts. These files are located in the main folder of the application.

HEADT.LST   - This contains the loading or unloading heading.
BODY.LST    - This contains the loading or unloading printout

## Printout for Profit Projection
------------------------------
Each time you run the Profit Projection module and print the output, the program creates a series of text files, which contain the same information as the printouts. These files are located in the main folder of the application.

PPCLSOUT.LST   - This contains the closeout report.
PPINPUT.LST    - This contains the General Information
PPITERHEAD.LST - This file contains heading for iteration information.
PPITER.LST     - This file contains iteration information. You can
                 import this file into Microsoft Excel and graph the
                 profit projection curve for the entire period.

# ANIMAL INFORMATION

There are four kinds of animal information dialog boxes:



Animal Information dialog box for Least Cost Ration: Growing or Finishing Cattle



Animal Information dialog box for Least Cost Ration: Breeding Cattle

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Animal Information dialog box for Ration Evaluation: Growing or Finishing Cattle



Animal Information dialog box for Ration Evaluation: Breeding Cattle

```
------------------------------------------------------------------------
NAVIGATION
------------------------------------------------------------------------
[Files]        Create, open, or save ration.
[<]            Previous screen.
[Goto]         Jump to another input section.
[>]            Next screen.
[Help]         Display help message.
[Formulate]    Formulate ration.
[Evaluate]     Evaluate ration.
[Main Menu]    Exit and return to main menu
------------------------------------------------------------------------
```

This is a general help message for the animal information screen in the following modules:

```
 LC_G    Least Cost Ration for Growing or Finishing Cattle
 LC_B    Least Cost Ration for Breeding Cattle
 EVAL_G  Ration Evaluation for Growing or Finishing Cattle
 EVAL_B  Ration Evaluation for Breeding Cattle
```

Most of the following fields are common to all four modules, but some of the fields may be present in one module but not in others.

TITLE
-----
   Enter a name and/or address or other identification for your ration
   on these two lines.  This title will be displayed at the top of all
   printed output for this ration.

WT UNIT
-------
   You may choose to enter data using either the English or the metric
   system.

   Enter  lb  to display all input and output in English units.
   Enter  kg  to display all input and output in metric units.

   The program will automatically convert any data already entered
   to the unit selected.

BEGINNING BODY WEIGHT
--------------------
   The body weight at the beginning of feeding  phase.

   The weight is based on the live shrunk body weight.  It is defined
   as weight after an overnight feed and water shrink (generally
   equivalent to about 96 percent of unshrunk weights taken in the early
   morning).  Usually equivalent to feedlot's In-Weight.

ENDING BODY WEIGHT
------------------
   The desired body weight at the end of feeding  phase.

   The weight is based on the live shrunk body weight.  It is defined
   as weight after an overnight feed and water shrink (generally
   equivalent to about 96 percent of unshrunk weights taken in the early
   morning).  Usually equivalent to feedlot's selling pay-weight.

DAILY GAIN
----------
   The average daily gain per animal per day during feeding phase.
   For the pregnant cows and heifers do not include the fetal gain which is
   0.9 lb/day (0.4 kg/day).  For pregnant females specify maternal gain
   which is about 0 - 1 lb/day (0 - 0.45 kg/day).

   Live gain is usually equivalent to feedlot's gain from in-weight to
   selling-pay-weight.
```

```
DAILY OVERHEAD COST
-------------------
  The nonfeed costs per head per day (dollars).

SEX
---
  Enter Steer, Heifer, Bull, or Cow.

BREED
-----
  Enter English, Holstein, Exotic, Brahman, or Other.

AGE
---
  Enter Calf, Yearling, or Adult.

FRAME
-----
  Enter Medium, or Large.

  Frame score describes the skeletal size of cattle.  Frame score depends
  on age, hip height, and nutrition level.

CONDITION SCORE
---------------
  Enter 1 through 9.

  Condition score relates to the degree of fatness.

     1 = Emaciated
     5 = Average
     9 = Very fat

COMPENSATORY GROWTH
-------------------
  Enter Yes or No.

  Adjustment for accelerated growth following a period of limited
  feed intake.

FEED INTAKE ADJUSTMENT
----------------------
  Due to certain feeding situations (ration quality, type of cattle,
  etc.), it may be necessary to adjust the total estimated consumption of
  the ration without regard of different ingredients.

  An entry of "0" leaves the estimated consumption unadjusted.
  An entry of -20 means that the animals will eat 20% less than normal.
  An entry of +15 implies that the animals will eat 15% more than normal.

MAINTENANCE ADJUSTMENT
----------------------
  Due to climate, type of cattle, etc., it may be necessary to adjust
  the  Net Energy required for Maintenance (NEm, Mcal/day).

  An entry of "0" leaves the estimated NEm unadjusted.
  An entry of -20 means that the animals requires 20% less than normal.
  An entry of +15 implies that the animals requires 15% more than normal.


LEAST COST GAIN
---------------
  If you answer 'Yes', the program, automatically, formulates for the
  optimum rate of gain which minimizes the cost per unit of gain.  In this
  mode, you can not put constraints on four nutrients: Net Energy for Maint,
  Crude protein, Calcium, and Phosphorus.  You also can not specify the
  amount of Dry Matter, but you can specify its percentage.
```

```
SEX
---
  Enter Heifer, Bull, or Cow.



MILK PRODUCTION
---------------
  Daily milk production expressed as kg/day or lb/day.  The normal range
  is 5 - 10 Kg/day.

MILK FAT
--------
  Percent fat in milk.  Normal range is 3 - 6 %

CALF BIRTH WEIGHT
-----------------
  Expected birth weight of calf expressed in kg or lb.

DAYS PREGNANT
-------------
  Days after conception.  Gestation period is 285 days.

FEED IMPLANT
------------
  None-use of feed implant reduces the voluntary intake of cattle by -8%
  and increases the NEm_req by 8%.

FEED ADDITIVE
-------------
  Feed additive effects the energy requirement and voluntary intake of
  cattle:
                                            NEm_req          Feed Intake
  Monensin @ 30g/ton diet ..................  -10 %              -10 %
  Monensin @ 20g/ton diet ..................  - 8 %              - 6 %
  Lasalocid in diet ........................  - 8 %              - 2 %

TEMPERATURE
-----------
  Temperature effects the voluntary intake of cattle:

  Heat Stress : Above 95 F (35 C) with no night cooling............. -5 %
  Normal:       From  41 - 95 F (5 - 35 C)..........................  0 %
  Cold Stress : Below 41 F (5 C) ................................... +5 %

MUD
---
  Mud effects the voluntary intake of cattle:

  Mild mud:    4 - 8 inches (10 - 20 cm)......................... -15 %
  Severe mud:  12 - 24 inches (30 - 60 cm).......................-30 %
```

# NUTRIENT CONSTRAINTS LIST

The nutrient constraints are calculated based on the animal information. If you change any value in the animal information dialog box, the program recalculates the nutrient constraints. You can also click the "ReCalc" button recalculate the constraints. If you select the Least Cost Gain option, the nutrient constraint list must be empty, if it is not, then click the "ReCalc" button to cleanup the constraints list.



**TAURUS 2014 USA [LC_G] DEMO.TAU**

NUTRIENT CONSTRAINTS:

| No | Code | Name | MIN Amount | Unit | MAX Amount | Unit |
|----|------|------|-----------|------|-----------|------|
| 1 | DM | Dry Matter | 19.421 | lb | 19.421 | lb |
| 2 | NEM | Net Energy for Maint | 0.585 | Mcal/lb | 0.585 | Mcal/lb |
| 3 | CP | Crude Protein | 7.792 | % | 0.000 | |
| 4 | CA | Calcium | 0.224 | % | 2.000 | % |
| 5 | P | Phosphorus | 0.179 | % | 1.000 | % |
| 6 | | | 0.000 | | 0.000 | |
| 7 | | | 0.000 | | 0.000 | |
| 8 | | | 0.000 | | 0.000 | |
| 9 | | | 0.000 | | 0.000 | |
| 10 | | | 0.000 | | 0.000 | |
| 11 | | | 0.000 | | 0.000 | |
| 12 | | | 0.000 | | 0.000 | |
| 13 | | | 0.000 | | 0.000 | |
| 14 | | | 0.000 | | 0.000 | |
| 15 | | | 0.000 | | 0.000 | |
| 16 | | | 0.000 | | 0.000 | |
| 17 | | | 0.000 | | 0.000 | |
| 18 | | | 0.000 | | 0.000 | |
| 19 | | | 0.000 | | 0.000 | |
| 20 | | | 0.000 | | 0.000 | |
| 21 | | | 0.000 | | 0.000 | |
| 22 | | | 0.000 | | 0.000 | |
| 23 | | | 0.000 | | 0.000 | |
| 24 | | | 0.000 | | 0.000 | |

[Files] [<] [Go to] [>] [Add] [Edit] [Delete] [ReCalc] [Help] [Formulate] [Main Menu]

Nutrient Constraints list

--------------------------------------------------------------------------
NAVIGATION
--------------------------------------------------------------------------

| [Files] | Create, open, or save ration. |
|---------|-------------------------------|
| [<] | Previous screen. |
| [Goto] | Jump to another input section. |
| [>] | Next screen. |
| [Add] | Add new constraint. |
| [Edit] | Edit existing constraint. |
| [Dbl Click] | Double click on a row in the list box invokes Edit button. |
| [Delete] | Delete existing constraint. |
| [Help] | Display help message. |
| [ReCalc] | Recalculate NRC requirements. |
| [Formulate] | Formulate ration. |
| [Main Menu] | Exit and return to main menu |

--------------------------------------------------------------------------

The nutrient constraints displayed on this page have been calculated based upon the animal information already entered on the previous page. If you wish to change any of these constraints, you may as follows:

To ADD a constraint:  Move your cursor to a blank line and click the [Add] button. A dialog box appears. Enter your new nutrient constraint and then click the [OK] button.

To EDIT a constraint:  Move your cursor to the line containing the constraint and click the [Edit] button. A dialog box appears. Modify the existing constraint and then click the [OK] button.
To DELETE a constraint: Move your cursor to the line containing the constraint and click the [Delete] button.

To regenerate default NRC nutrient constraints, click the [ReCalc] button. This will replace all nutrient constraints which you may have changed previously. Alternatively, any change in the Animal Information screen, such as changing the animal weight, will have the same effect as clicking the [ReCalc] button.



Edit Existing Nutrient Constrains dialog box.

CODE
----
  This column contains the nutrient codes.

NAME
----
  This column contains the nutrient names.
  The following is a list of nutrients and their abbreviations:

```
  DE    Digestible energy    NCHO NonStruct Carbohyd    SE    Selenium
  ME    Metabolizable Energy HC   Hemicellulose         ZN    Zinc
  NEM   Net Energy for Maint LIGN Lignin                VITA  Vitamin A
  NEG   Net Energy for Gain  CA   Calcium               VITD  Vitamin D
  TDN   Total Digestible Nut CL   Chlorine              VITE  Vitamin E
  CP    Crude Protein        MG   Magnesium             ARGI  Arginine
  UIP   Undegrad Intake Prot P    Phosphorus            HIST  Mistidine
  DIP   Degrad Intake Prot   K    Potassium             LYSI  Lysine
  NPN   Non Protein Nitrogen NA   Sodium                METH  Methionine
  EE    Ether Extract        S    Sulfur                PHEN  Phenylalanine
  ASH   Ash                  CO   Cobalt                THRE  Threonine
  CF    Crude Fiber          CU   Copper                NUT1  User Nut 1
  CELL  Cellulose            I    Iodine                NUT2  User Nut 2
  ADF   Acid Detergent Fiber FE   Iron                  NUT3  User Nut 3
  NDF   Neutral Det Fiber    MN   Manganese             NUT4  User Nut 4
```

MINIMUM
-------
  This column contains the minimum amount of the selected nutrient that
  will be included in the ration.  It also displays the type of minimum
  constraint.

```
MAXIMUM
-------
   This column contains the maximum amount of the selected nutrient that
   will be included in the ration. It also displays the type of maximum
   constraint.
```

# FEED LIST



Feed List dialog box

```
-------------------------------------------------------------------------
NAVIGATION
-------------------------------------------------------------------------
[Files]         Create, open, or save ration.
[<]             Previous screen.
[Goto]          Jump to another input section.
[>]             Next screen.
[Feed Analysis]View or edit nutrient analysis of feed.
[Add]           Add new feed.
[Edit]          Edit existing feed.
[Dbl Click]     Double click on a row in the list box invokes Edit button.
[Delet]         Delete existing feed.
[Price Unit]    Select the feed price unit.
[Help]          Display help message.
[Formulate]     Formulate ration.
[Main Menu]     Exit and return to main menu
-------------------------------------------------------------------------
```

ADDING FEED
-----------
  When you add a feed from the standard or alternate feed libraries to your
  ration data file, a separate copy of that feed will be added to your
  ration data file.

  Change in the feed in your ration data file does not reflect back to the
  feed in the feed library. Change in the feed in the feed library does not
  reflect back to the feed in your ration data file. These two feeds remain
  independent from each other.

  When you add a new feed, make sure to set its fourth feed group to 13,
  which specifies the real feeds. This is useful in the output section
  for viewing only the real feeds and excluding all the infeasible feeds.


LIBRARY CODE

------------
   Enter the set of feeds that you wish to consider for ration formulation
   into the table on this page.  If you are evaluating an existing ration,
   enter all of the feeds that are in the ration as well as the amounts as
   fed per day.

   To ADD a feed to the list:  use the arrow keys to move to a blank line
   in the table.  Then press the <Add> button.

   Feed library codes are as follows:
      STD - the information for this feed is stored in the standard library
            of feeds supplied by the program.
      ALT - the feed information is contained in an alternate feed library
            which has been created or modified by you, the program user.
      NEW - the feed information is not contained in any existing feed
            library.  You must enter into the program the entire nutrient
            analysis for a new feed, since the information is not stored
            anywhere else.

   To DELETE a feed from the list:  use the arrow keys to move to the line
   in the table containing the feed that you wish to delete.  Remove the
   feed by pressing the <Delete> button.

   To EDIT a feed:  move to the line that you want to edit and then press
   the <Edit> button.



Edit Feed Constraints dialog box

FEED NUMBER
-----------
   Each feed in the standard and alternate feed libraries has a unique
   number assigned to it.  If you are entering information for a new feed,
   you may assign it any number you wish.  If you are selecting a feed
   from one of the existing feed libraries and you do not know its
   corresponding number, press the arrow in the choice list to get a list
   of all feed numbers and names in the selected library.  You can then use
   the arrow keys to move to the feed that you want.

FEED NAME
---------

Enter a descriptive name for the feed.

FEED PRICE
----------
  Enter the cost of this feed in the units specified:

        dollars per ton:      English ton    ( = 2000 lb),   OR
                    cwt:      hundred weight ( =  100 lb),   OR
                    met ton:  metric ton     ( = 1000 kg),   OR
                    kg:       kilogram

  If you wish to enter the feed price in a unit different from the one
  specified, press the <Price Unit> button. After you select the desired
  price unit, the program will automatically convert any data already
  entered to the unit selected.

MINIMUM AMOUNT
--------------
  You can force a feed to be included in the ration by entering a minimum
  constraint amount.  The program will then include at least this amount
  and maybe more when formulating the ration.  After you enter the
  desired amount, the program will ask you to identify the type of
  constraint (i.e. percent, lbs) by displaying a menu of choices.  Use
  the arrow keys to move to the desired constraint type, and then press
  <Enter>.

  To delete an existing minimum constraint, enter 0 for the amount.


MINIMUM UNIT
------------
  Identify the type of minimum constraint by using the arrow keys to
  move to the desired type.  Then press the <Enter> key.

MAXIMUM AMOUNT
--------------
  You can limit the amount of a feed in the ration by entering a maximum
  constraint on that feed.  After you enter the desired amount, the
  program will ask you to identify the type of constraint (i.e. percent,
  lbs) by displaying a menu of choices.  Use the arrow keys to move to
  the desired constraint type, and then press <Enter>.

  Many of the feeds in the standard feed library have built-in maximum
  constraints which will automatically be displayed in this column.

  To delete an existing maximum constraint, enter 0 for the amount.

MAXIMUM UNIT
------------
  Identify the type of maximum constraint by using the arrow keys to
  move to the desired type.  Then press the <Enter> key.

FEED ANALYSIS
-------------
  If you wish to view or edit the nutrient analysis for a particular feed,
  press the <Feed Analysis> button. The program will then display the
  entire nutrient analysis for the feed.

  If you are entering information for a NEW feed, you must fill in the
  entire nutrient analysis, since the information for a new feed is not
  already stored in one of the feed libraries.

  All changes are local to this particular ration data file and does not
  change the nutrient analysis of that particular feed in the standard or
  alternate feed libraries.

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FEED ANALYSIS:

| | | | | |
|---|---|---|---|---|
| Feed Number: | 18 | Libray: | STD | International Feed Number: 1-00-063 |
| Feed Name: | ALFALFA mid bloom | | Price: $ 125.00 | per ton |
| DM as fed: | 90.00 % | Type: R Roughage | Group: 1 . 0 . 0 . 13 | |

NUTRIENT ANALYSIS: 100.00 % DRY MATTER BASIS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DE | 1.161 | Mcal/lb | LIGN | 9.000 | % | VITE | 4.991 | IU/lb |
| ME | 0.952 | Mcal/lb | CA | 1.410 | % | ARGI | 0.000 | % |
| NEM | 0.565 | Mcal/lb | CL | 0.380 | % | HIST | 0.000 | % |
| NEG | 0.307 | Mcal/lb | MG | 0.310 | % | LYSI | 0.000 | % |
| TDN | 58.000 | % | P | 0.240 | % | METH | 0.000 | % |
| CP | 17.000 | % | K | 1.710 | % | PHEN | 0.000 | % |
| UIP | 4.760 | % | NA | 0.120 | % | THRE | 0.000 | % |
| DIP | 12.240 | % | S | 0.280 | % | NUT1 | 0.000 | Mcal/lb |
| NPN | 0.000 | % | CO | 0.360 | ppm | NUT2 | 0.000 | % |
| EE | 2.600 | % | CU | 14.000 | ppm | NUT3 | 0.000 | Mcal/lb |
| ASH | 9.100 | % | I | 0.160 | ppm | NUT4 | 0.000 | Unit/lb |
| CF | 26.000 | % | FE | 134.000 | ppm | | | |
| CELL | 26.000 | % | MN | 28.000 | ppm | | | |
| ADF | 35.000 | % | SE | 0.320 | ppm | | | |
| NDF | 46.000 | % | ZN | 23.000 | ppm | | | |
| NCHO | 0.000 | % | VITA | 20.870 | k IU/lb | | | |
| HC | 10.000 | % | VITD | 0.907 | k IU/lb | | | |

Enter the international feed number. Format 9-99-9999X                     [Cancel] [Save]

Feed Analysis dialog box.

INTERNATIONAL FEED NUMBER
-------------------------
  This field is optional.  Common feed stuffs are assigned a 6-digit
  international feed number (IFN) for identification and computer
  manipulation.  The first digit in the IFN represents the international
  feed classes:

        1.   Dry forages and roughages
        2.   Pasture, range plants, and forage fed fresh
        3.   Silage
        4.   Energy feeds
        5.   Protein supplements
        6.   Mineral supplements
        7.   Vitamin supplements
        8.   Additives


DRY MATTER (PERCENT AS FED)
---------------------------
  The dry matter percentage of a feed is 100 minus the moisture percentage
  of the feed.  If a feed is totally dry, it has 100% dry matter.  If, for
  example, the feed has a 20% moisture content, its dry matter percentage
  would be 80.

FEED TYPE
---------
  Each feed must be classified as either a roughage or a concentrate.
  Roughages are feeds containing a high amount of fiber, such as alfalfa
  hay and corn silage.  All other feeds are concentrates.

MVI FACTOR

```
----------
  Each roughage feed has a corresponding maximum voluntary intake (MVI)
  factor (range:  1.0 to 1.4: excellent quality = 1.0, fair quality = 1.4).
  If an MVI factor for a forage is omitted, the default value = 1.4.
```

FEED GROUPS
```
-----------
  Each feed may be a member of one or more groups of similar feeds.  By
  placing the feed into a group, you can put constraints on the group of
  feeds for ration formulation.  You can also choose to view the
  nutrient analysis for a particular feed group in the ration display
  portion of the program.

  All feeds with an identical group number are considered to be members
  of the same group.
```

DRY MATTER BASIS
```
----------------
  This field allows you to choose the dry matter basis to use for editing
  the nutrient analysis of the feed.  Most feed nutrient analyses are
  reported on a 100% dry matter basis.  However, if you have nutrient data
  on other than a 100% dry matter basis, enter the dry matter percentage
  used for the analysis and corresponding nutrient data, and the program
  will convert everything to 100% dry matter internally.

  If you wish to enter data on an "as fed" basis, enter 0, and the program
  will insert the correct basis, as fed.
```

# FEED GROUP CONSTRAINTS LIST



Feed Group Constraints List

```
------------------------------------------------------------------------
NAVIGATION
------------------------------------------------------------------------
[Files]        Create, open, or save ration.
[<]            Previous screen.
[Goto]         Jump to another input section.
[>]            Next screen.
[Add]          Add new constraint.
[Edit]         Edit existing constraint. Not available in Evaluation module.
[Dbl Click]    Double click on a row in the list box invokes Edit button.
[Delete]       Delete existing constraint.
[Help]         Display help message.
[Show Feeds]   Show feeds in a feed group.
[Formulate]    Formulate ration.
[Evaluate]     Evaluate ration.
[Main Menu]    Exit and return to main menu
------------------------------------------------------------------------
```

GROUP NUMBER
------------
  This table lists all of the feed groups that have been specified in the
  feed list.

  To ADD a group to the list:  You can not add a feed group directly. The
  programs adds groups automatically when a feed which belongs to that
  group is added in the previous screen.

  To DELETE a group from the list:  You can not delete a feed group directly.
  The programs deletes groups automatically when all feeds which belongs to
  that group are deleted in the previous screen.

  Two exceptions are the pre-defined Roughage and Concentrate groups,
  which are built in to the program and can never be deleted.

GROUP NAME
----------

Enter a descriptive name for the feed group.

MINIMUM AMOUNT
--------------
  You can force a feed group to be included in the ration by entering a
  minimum constraint amount.  The program will then include at least this
  amount and maybe more when formulating the ration.  After you enter
  the desired amount, the program will ask you to identify the type of
  constraint (i.e. percent, lbs) by displaying a menu of choices.  Use
  the arrow keys to move to the desired constraint type, and then press
  <Enter>.

  To delete an existing minimum constraint, enter 0 for the amount.

MINIMUM UNIT
------------
  Identify the type of minimum constraint by using the arrow keys to
  move to the desired type.  Then press the <Enter> key.

MAXIMUM AMOUNT
--------------
  You can limit the amount of a feed group in the ration by entering a
  maximum constraint on that group.  After you enter the desired amount,
  the program will ask you to identify the type of constraint (i.e. lbs,
  percent) by displaying a menu of choices.  Use the arrow keys to move
  to the desired constraint type, and then press <Enter>.

  Many of the feed groups in the standard library have built-in maximum
  constraints which will automatically be displayed in this column.

  To delete an existing maximum constraint, enter 0 for the amount.

MAXIMUM UNIT
------------
  Identify the type of maximum constraint by using the arrow keys to
  move to the desired type.  Then press the <Enter> key.



Edit Existing Feed Group Constraints dialog box

# RATIO CONSTRAINTS LIST



Ratio Constraints List

```
------------------------------------------------------------------------
NAVIGATION
------------------------------------------------------------------------
[Files]         Create, open, or save ration.
[<]             Previous screen.
[Goto]          Jump to another input section.
[>]             Next screen.
[Add]           Add new constraint.
[Edit]          Edit existing constraint. Not available in Evaluation module.
[Dbl Click]     Double click on a row in the list box invokes Edit button.
[Delete]         Delete existing constraint.
[Help]          Display help message.
[Formulate]     Formulate ration.
[Evaluate]      Evaluate ration.
[Main Menu]     Exit and return to main menu
------------------------------------------------------------------------

RATIO TYPE
----------
  In this table you can define ratio constraints to be used for
  ration formulation, or you can simply specify a set of ratios to
  automatically be calculated by the program when displaying the
  contents of the ration.

  To ADD a ratio to the list:  use the arrow keys to move to a blank line
  in the table and click the <Add> button.

  Ratio types are as follows:
    Nut - nutrient ratios
    Fd  - feed ratios
    Grp - feed group ratios

  To DELETE a ratio from the list:  use the arrow keys to move to the line
  in the table containing the ratio that you wish to delete.  Then click
  the <Delete> button.
```

To EDIT a ratio:  move to the line that you want to edit and then click
the <Edit> button.



Edit Ratio Constraints dialog box

NUMERATOR CODE
--------------
  Each ratio has two parts: a numerator and a denominator.  If, for
  example, you are defining a calcium to phosphorus ratio, the numerator
  is calcium and the denominator is phosphorus.

  Enter the code for the numerator in this column.

DENOMINATOR CODE
----------------
  Each ratio has two parts: a numerator and a denominator.  If, for
  example, you are defining a calcium to phosphorus ratio, the numerator
  is calcium and the denominator is phosphorus.

CONSTRAINT AMOUNT
-----------------
  You should enter a ratio constraint amount as   x.xx to 1,
  where the x's represent the ratio of the numerator to the denominator.
  For example, if you want to have twice as much calcium as phosphorus
  in the ration, you would define a calcium to phosphorus ratio of 2 to 1,
  where 2 is the number that you would specify for the constraint amount.

  If you do not want to enter a constraint for formulation but you do
  want to have the actual ratio calculated by the program when displaying
  the contents of the ration, enter  0  for the constraint amount.

CONSTRAINT UNIT
---------------
  Identify the type of ratio constraint by using the arrow keys to
  move to the desired type.  Then press the <Enter> key.

# OUTPUT

```
-------------------------------------------------------------------------
NAVIGATION
-------------------------------------------------------------------------
[Files]          Create, open, or save profit projection files.
                 The print option is under Files button.
[<]              Previous screen.
[Goto]           Jump to another output section.
[Dbl Click]      Double click on a row in the list box invokes Goto button.
[>]              Next screen.
[Combine]        Combine feeds in mix. Available only in LC_G and LCB modules.
[Feed Group]     Select feed group to display.
[DM Basis]       Select dry matter basis.
[Help]           Display help message.
[Input]          Jump to input screen.
[Main Menu]      Exit and return to main menu.
-------------------------------------------------------------------------
```

```
COST, PERFORMANCE, AND METHANE EMISSION
---------------------------------------
```



```
COST, PERFORMANCE, AND METHANE EMISSION
---------------------------------------
```
This section displays the cost and performance of the ration.  It
also displays the Methane Emission values. For the cost and
performance, the following information is included:

1.  Days on feeding phase.

2.  Gain for whole phase, per day, and per unit of gain.

3.  Feed Intake for whole phase, per day. and per unit of gain.

4.  Feed cost for whole phase, per day, and per unit of gain.

5.  Feed and overhead cost for whole phase, per day, and per unit of gain.

For the Methane Emission, the following information is included:

1. Methane Emission in MJ/day.

2. Methane Emission in Mcal/day.

3. Methane Emission in g/day.

4. Methane Emission in g /kg Dry Matter Intake or in g/lb Dry Matter Intake.

5. Methane Emission ratio to Gross Energy Intake.

```
TAURUS 2014 USA [LC_G] DEMO.TAU                                              [X]
┌─OUTPUT──────────────────────────────────────────────────────────────────────┐
│                        California Beef Cattle Ranch                           │
│                     One Shields Avenue, Davis, CA 95616 USA                   │
│             Phone:(530)752-1278 FAX:(530)752-0175 http://animalscience.ucdavis.edu │
│                                                                              │
│                                                                              │
│                    R A T I O N   C O M P O S I T I O N                        │
│                              ALL FEEDS                                        │
│                                                                              │
│                                                       ---Constraints----      │
│                             AS FED        DRY MATTER    As fed   100% DM      │
│            ALL FEEDS        BASIS:         BASIS:      -lb/day-  -%Total-     │
│            in the ration   lb/day    %    lb/day    %  min  max  min  max     │
│            -------------------- ------ -------  ------ ------- --- --- --- --- │
│            RICE hulls       11.296  53.076  10.392  53.509                    │
│            CORN grain flaked  8.571  40.275   7.629  39.280                   │
│            FAT animal hydrol  1.177   5.531   1.165   6.000                   │
│            UREA 45% nitrogen  0.147   0.688   0.145   0.747            1.0     │
│            OYSTERSHELL ground  0.069  0.324   0.068   0.351                   │
│            CALCIUM phos di    0.023   0.107   0.022   0.113                   │
│                             ------          ------                           │
│               Total Ration......  21.282        19.421                       │
│                                                                              │
│               Cost, $/day.......   0.68                                       │
│               Cost, $/ton.......  64.09         70.23                         │
│                                                                              │
└──────────────────────────────────────────────────────────────────────────────┘
 [Files] [<] [Go to] [>]   [Combine] [DM Basis] [Feed Group] [Help]   [Input] [Main Menu]
```

This section displays the amounts of all feeds used in the ration, or
the amounts for a feed group selected by using the <Feed Group> button.
The following information is included for each feed used in the ration
(or group):

1. The amount of the feed in the ration, lb/day or kg/day, as fed basis.

2. The percentage of the feed in the ration (or group), as fed basis.

3. The amount of the feed in the ration, lb/day or kg/day, on a 100%
   dry matter basis.

4. The percentage of the feed in the ration (or group), on a 100% dry
   matter basis.

5. Feed and feed group ratios.  If you previously defined any feed or
   group ratios on the Ratios List, the program will calculate the
   ratio amounts in the ration (or feed group) and display them in
   this section.  Feed ratios will be displayed only if both feeds
   are used in the ration (or group).  Group ratios are displayed only
   when viewing the composition of ALL FEEDS in the ration.

PRICE RANGE AND FEEDS NOT USED
------------------------------

```
TAURUS 2014 USA [LC_G] DEMO.TAU                                              [x]
┌OUTPUT──────────────────────────────────────────────────────────────────────┐
│                         California Beef Cattle Ranch                          │
│                     One Shields Avenue, Davis, CA 95616 USA                   │
│              Phone:(530)752-1278 FAX:(530)752-0175 http://animalscience.ucdavis.edu │
│                                                                              │
│                                                                              │
│                 P R I C E   R A N G E S   $/ton   A S   F E D                │
│                                                                              │
│           Feeds used in ration     lbs per day     Price  Lower range  Upper range │
│           -----------------------   -----------    -----  -----------  ----------- │
│           STD 162 CALCIUM phos di      0.02267     480.00       55.44     1870.88  │
│           STD 231 CORN grain flaked    8.57144     120.00       98.51      133.29  │
│           STD 267 FAT animal hydrol    1.17704     240.00     -918.84      299.03  │
│           STD 430 OYSTERSHELL ground   0.06892     100.00       -3.13      549.77  │
│           STD 563 RICE hulls          11.29571       0.00     -120.75       36.26  │
│           STD 675 UREA 45% nitrogen    0.14651     240.00       -2.06      893.95  │
│                                                                              │
│                                          ------- Price as fed, $/ton ----      │
│           F E E D S   N O T   U S E D      At formulation       Opportunity    │
│           -----------------------         --------------        ----------     │
│           STD  18 ALFALFA mid bloom           125.00              75.86        │
│           STD  30 ALMOND hulls 15% CF          75.00              48.24        │
│           STD 154 BUCKWHEAT grain             100.00              90.67        │
│           STD 383 MOLASSES cane                80.00              70.24        │
│           STD 399 OAT hay dough stage         100.00              55.12        │
│           STD 692 WHEAT grain SRW             125.00             111.40        │
│                                                                              │
│                                                                              │
└──────────────────────────────────────────────────────────────────────────────┘
  [Files] [ < ] [Go to] [ > ]   [Combine] [DM Basis] [Feed Group] [Help]   [Input] [Main Menu]
```

This section displays the following information for feeds used in the ration:

1.  The amount of each feed in the ration, lb/day or kg/day on an as fed basis.

2.  The current price of the feed on an as fed basis.

3.  The lower range of the feed price.  This is the lowest price that the feed can have without affecting its amount used in the ration. If you change the feed to a price below the lower range and then reformulate the ration, the ration composition will change to include more of that feed.  Other feeds previously used in the ration may no longer be used.  If the lower range is negative, it is not practical to use more of the feed in the ration.  If the lower range is -999999.99, the feed amount in the ration cannot be increased due to a maximum constraint on that feed.

4.  The upper range of the feed price.  This is the highest price that the feed can have without affecting its amount used in the ration. If you change the feed to a price above the upper range and then reformulate the ration, the ration composition will change to include less of that feed, or the feed may be eliminated from the ration. If the upper range is 999999.99, the feed amount in the ration cannot be decreased due to a minimum constraint on that feed.


For feeds NOT USED in the ration, this section displays the following:

1.  The current price of the feed on an as fed basis.

2.  The opportunity price of the feed.  This is the price that the feed must drop to in order for it to be used in the ration.  If you add a feed with a price of $10000 per cwt to the feed list and then

formulate the ration, the feed will not be included unless it contains
some necessary nutrient that is not available from any other feed.
If the feed is not used, it would become a good buy if its cost were
less than or equal to the opportunity price.

NUTRIENT ANALYSIS OF THE RATION (OR FEED GROUP)
----------------------------------------------

```
TAURUS 2014 USA [LC_G] DEMO.TAU                                          ✕
┌─OUTPUT────────────────────────────────────────────────────────────────┐
│                   California Beef Cattle Ranch                          │
│                 One Shields Avenue, Davis, CA 95616 USA                 │
│         Phone: (530)752-1278 FAX: (530)752-0175 http://animalscience.ucdavis.edu │
│                                                                         │
│                                                                      ▲  │
│    N U T R I E N T   A N A L Y S I S:   ENTIRE RATION     100.00% DM BASIS │
│                                                                         │
│                                 -User Constraints-   NRC Recommendation │
│    Nutrient      Amount and Type    Minimum   Maximum   Minimum   Maximum │
│    --------      ---------------    -------   -------   -------   ------- │
│    DM              91.255 %                                              │
│                    19.421 lb         19.421    19.421    19.421    19.421 │
│    DE               1.104 Mcal/lb                                        │
│                    21.447 Mcal                                          │
│    ME               0.924 Mcal/lb                                       │
│                    17.947 Mcal                                          │
│    NEM              0.585 Mcal/lb      0.585     0.585     0.585     0.585 │
│                     6.993 Mcal                             6.993         │
│    NEG              0.325 Mcal/lb                          0.325         │
│                     2.426 Mcal                             2.426         │
│    TDN             51.607 %                                              │
│                    10.023 lb                                            │
│    CP               7.792 %           7.792               7.792         │
│                     1.513 lb                              1.513         │
│    UIP              3.576 %                                              │
│                     0.694 lb                                            │
│    DIP              4.336 %                                             │
│                     0.842 lb                                            │
│    NPN              0.336 %                                             │
│                     0.065 lb                                            │
│    EE               8.087 %                                             │
│                     1.571 lb                                         ▼  │
│                                                                         │
├─────────────────────────────────────────────────────────────────────┤
│  [Files] [ ‹ ] [Go to] [ › ]   [Combine] [DM Basis] [Feed Group] [Help]    [Input] [Main Menu] │
└─────────────────────────────────────────────────────────────────────┘
```

This section displays information for all feeds in the ration, or for a
feed group selected by using the <Feed Group> button.  The following
information is included:

1.  Amount and type.  Two lines are displayed for each nutrient:  line 1
    is the CONCENTRATION (percent, ppm, Mcal/lb, etc.) of the nutrient.
    Line 2 is the AMOUNT (lb, kg, Mcal, etc.) of the nutrient contained
    in the ration or in a selected feed group.

2.  NRC recommendation.  This is the nutrient amount recommended by the
    National Research Council.  These amounts are calculated internally
    by the program, based upon the data that you supplied on the Animal
    Information page.  Not all NRC amounts are used as constraints for
    ration formulation.  By comparing the NRC recommendation with the
    actual amount of the nutrient in the ration (or selected feed group),
    you can determine if the ration (or feed group) is deficient in that
    particular nutrient.

3.  Nutrient ratios.  If you previously defined any nutrient ratios on
    the Ratios List, the program will calculate the ratio amounts in the
    ration (or feed group) and display them in this section.


If you have just formulated a ration, you will also see the following:

4.  Minimum and maximum constraints.  These are the constraints which
    were used by the program when the ration was formulated.  The
    displayed nutrient constraints do not apply to any selected feed
    groups within the ration:  they are constraints on ALL feeds.


By clicking the <DM Basis> button, you can change the dry matter basis
for calculation of the nutrient analysis.  The dry matter basis affects

the concentration of the nutrients, but not the actual amounts or ratios of nutrients in the ration (or feed group).  The nutrient constraints and the NRC minimum requirements are also affected by the dry matter basis if they represent nutrient concentrations and not actual amounts or ratios.

```
TAURUS 2014 USA [LC_G] DEMO.TAU                                          ☒

┌OUTPUT─────────────────────────────────────────────────────────────────┐
│                        California Beef Cattle Ranch                      │
│                   One Shields Avenue, Davis, CA 95616 USA                │
│           Phone:(530)752-1278 FAX:(530)752-0175 http://animalscience.ucdavis.edu │
│                                                                         │
│  ┌───────────────────────────────────────────────────────────────────┐ │
│  │         1 .   E N E R G Y   A N D   P R O T E I N                   │ │
│  │              100.00 % DRY MATTER BASIS                              │ │
│  │                                                                    │ │
│  │                            NEM  NEG                                │ │
│  │  Library                   DM Mcal Mcal TDN   CP    UIP    DIP      │ │
│  │  Number  Feed Name          %  /lb  /lb   %    %     %      %       │ │
│  │  ------- -------------------- --- ---- ---- --- ----- ------ -----   │ │
│  │  STD  18 ALFALFA mid bloom   90 0.57 0.31  58  17.0   4.76  12.2    │ │
│  │  STD  30 ALMOND hulls 15% CF 90 0.47 0.22  52   2.1   1.67   3.0    │ │
│  │  STD 154 BUCKWHEAT grain     88 0.77 0.49  72  12.5   0.00   0.0    │ │
│  │  STD 162 CALCIUM phos di     97 0.00 0.00   0   0.0   0.00   0.0    │ │
│  │  STD 231 CORN grain flaked   89 1.08 0.76  88  10.0   5.67   4.1    │ │
│  │  STD 267 FAT animal hydrol   99 2.67 1.96 177   0.0   0.00   0.0    │ │
│  │  STD 383 MOLASSES cane       75 0.77 0.49  72   5.8   0.00   0.0    │ │
│  │  STD 399 OAT hay dough stage 90 0.49 0.24  53  11.5   3.56   7.9    │ │
│  │  STD 430 OYSTERSHELL ground  99 0.00 0.00   0   0.0   0.00   0.0    │ │
│  │  STD 563 RICE hulls          92 0.00 0.00  12   3.3   2.52   1.1    │ │
│  │  STD 675 UREA 45% nitrogen   99 0.00 0.00   0 281.0   0.00 287.5    │ │
│  │  STD 692 WHEAT grain SRW     88 1.00 0.69  89  10.8   0.00   8.5    │ │
│  └───────────────────────────────────────────────────────────────────┘ │
│                                                                         │
│  ┌──────┐ ┌─┐┌──────┐┌─┐   ┌─────────┐┌──────────┐┌──────────┐┌──────┐  ┌──────┐┌───────────┐ │
│  │ Files│ │<││ Go to││>│   │ Combine ││ DM Basis ││ Feed Group││ Help │  │ Input││ Main Menu │ │
│  └──────┘ └─┘└──────┘└─┘   └─────────┘└──────────┘└──────────┘└──────┘  └──────┘└───────────┘ │
└─────────────────────────────────────────────────────────────────────────┘
```

This section displays the nutrient analysis for all feeds that you have
selected to be in your feed list.

By pressing the <DM Basis> button, you can change the dry matter basis
for calculation of the nutrient analysis.  Enter 0 to calculate the
analysis for all feeds on an as fed basis.

If an asterisk (*) appears in any column, the nutrient amount for the
feed in question is too large to be printed inside that column.  You
can view the actual amount by looking at the nutrient analysis
within the feed list page in the input section of this program.

# DELIVERY MODULE

## DELIVERY MODULE: GENERAL INFORMATION



Delivery Module: General Information dialog box.

```
------------------------------------------------------------------------
NAVIGATION
------------------------------------------------------------------------
[Files]         Create, open, or save ration.
[<]             Previous screen.
[Goto]          Jump to another input section.
[>]             Next screen.
[Help]          Display help message.
[Show Sched]    Display schedules.
[Main Menu]     Exit and return to main menu
------------------------------------------------------------------------
```

TITLE
-----
  Enter a name and/or address or other identification for your ration
  on these two lines.  The title will be displayed at the top of all
  printed output for this ration.

Wt Unit
-------
  You may choose to enter data using either the English or the metric
  system.

  Enter  lb  to display all input and output in English units.
  Enter  kg  to display all input and output in metric units.

  The program will automatically convert any data already entered
  to the unit selected.

LOADING SCHEDULE TYPE
---------------------
  You may choose to calculate the loading schedules based upon

```

the total number of animals to be fed  OR  the total amount of feed
(lb or kg per feeding per day) to be added to the mix.  Total feed
amounts do NOT include feeds in the ration that are fed separately
from the mix.

If all feeds in the ration are to be fed separately (there is no mix
to be created), the total amount (lb or kg) that you enter on this line
will correspond to the total amount of feeds fed separately (lb or kg
per feeding per day).

FEED LOADING MINIMUM AMOUNT
---------------------------
  Feed loading schedules are calculated for a range of the total number
  of animals to be fed.  Enter the minimum number of animals to be fed on
  this line (range: 0 to 45000 animals).

  If you have specified lb or kg instead of animals as the schedule type,
  enter the minimum amount of mix to be created (lb or kg per feeding per
  day;  range: 0 to 45000 lb, or 0 to 20400 kg).

FEED LOADING MAXIMUM AMOUNT
---------------------------
  Feed loading schedules are calculated for a range of the total number
  of animals to be fed.  Enter the maximum number of animals to be fed on
  this line (range: 0 to 45000 animals).

  If you have specified lb or kg instead of animals as the schedule type,
  enter the maximum amount of mix to be created (lb or kg per feeding per
  day;  range: 0 to 45000 lb, or 0 to 20400 kg).

FEED LOADING INCREMENT
----------------------
  Feed loading schedules are calculated for a range of the total number
  of animals to be fed.  Enter the number of animals that you want to use
  as an increment for calculating each of the schedules (range: 0 to
  45000 animals).

  If you have specified lb or kg instead of animals as the schedule type,
  enter the increment for the total amount of mix to be created (lb or kg
  per feeding per day;  range: 0 to 45000 lb, or 0 to 20400 kg).

  The program will calculate a maximum of twelve schedules.

UNLOADING SCHEDULE TYPE
-----------------------
  You may choose to calculate the unloading schedules based upon
  the total number of animals to be fed  OR  the total amount (lb or kg
  per feeding per day) to be unloaded from the mix.  Total amounts do
  NOT include feeds in the ration that are fed separately from the mix.

  If all feeds in the ration are to be fed separately (there is no mix
  feed), the total amount (lb or kg) that you enter on this line
  will correspond to the total amount of feeds fed separately (lb or kg
  per feeding per day).

FEED UNLOADING MINIMUM AMOUNT
-----------------------------
  Feed unloading schedules are calculated for a range of the total number
  of animals to be fed.  Enter the minimum number of animals to be fed on
  this line (range: 0 to 45000 animals).

  If you have specified lb or kg instead of animals as the schedule type,
  enter the minimum amount of mix to be unloaded (lb or kg per feeding per
  day;  range: 0 to 45000 lb, or 0 to 20400 kg).

FEED UNLOADING MAXIMUM AMOUNT
-----------------------------
  Feed unloading schedules are calculated for a range of the total number

of animals to be fed.  Enter the maximum number of animals to be fed on
this line (range: 0 to 45000 animals).

If you have specified lb or kg instead of animals as the schedule type,
enter the maximum amount of mix to be unloaded (lb or kg per feeding
per day;  range: 0 to 45000 lb, or 0 to 20400 kg).

FEED UNLOADING INCREMENT
------------------------
  Feed unloading schedules are calculated for a range of the total number
  of animals to be fed.  Enter the number of animals that you want to use
  as an increment for calculating each of the schedules (range: 0 to
  45000 animals).

  If you have specified lb or kg instead of animals as the schedule type,
  enter the increment for the total amount of mix to be unloaded (lb or
  kg per feeding per day;  range: 0 to 45000 lb, or 0 to 20400 kg).

  The program will calculate a maximum of twelve schedules.

MIX FEEDS:  NUMBER OF FEEDINGS PER DAY
--------------------------------------
  Enter the number of times per day that the animals are to be given
  ration feeds included in a mix (range: 1 to 9 feedings per day).

ROUNDING FACTOR FOR SCALE WEIGHTS
---------------------------------
  Enter the rounding factor used to display the scale weights in the
  loading and unloading schedules.  You have the following choices for
  rounding factors:

      1      nearest      one lb (kg)      (158.347 displays as 158)
     10      nearest      ten lb (kg)      (158.347 displays as 160)
      0.1    nearest    tenth lb (kg)      (158.347 displays as 158.3)
      0.01   nearest hundredth lb (kg)     (158.347 displays as 158.35)

## DELIVERY MODULE: FEED LIST



```
TAURUS 2014 USA [DELIVERY] DEMO.TAU                                          [X]
 FEED LIST:

    LIB  FEED                    Feeding      AMOUNT IN RATION
    Code No.  Name               Method       lbs per day as fed

    STD   18   ALFALFA mid bloom    Sep            0.00000        [▲]
    STD   30   ALMOND hulls 15% CF  Mix            0.00000
    STD  154   BUCKWHEAT grain      Mix            0.00000
    STD  162   CALCIUM phos di      Mix            0.02267
    STD  231   CORN grain flaked    Sep            8.57144
    STD  267   FAT animal hydrol    Mix            1.17704
    STD  383   MOLASSES cane        Mix            0.00000
    STD  399   OAT hay dough stage  Mix            0.00000
    STD  430   OYSTERSHELL ground   Mix            0.06892
    STD  563   RICE hulls           Mix           11.29571
    STD  675   UREA 45% nitrogen    Mix            0.14651
    STD  692   WHEAT grain SRW      Mix            0.00000
           0                                       0.00000
           0                                       0.00000
           0                                       0.00000
           0                                       0.00000
           0                                       0.00000
           0                                       0.00000
           0                                       0.00000
           0                                       0.00000
           0                                       0.00000
           0                                       0.00000
           0                                       0.00000
           0                                       0.00000
           0                                       0.00000
           0                                       0.00000   [▼]

  Files   [<]  Go to  [>]      Feed Analysis  Add  Edit  Delete  Help      Show Sched.  Main Menu
```

Delivery Module: Feed List dialog box.


```
-------------------------------------------------------------------------
NAVIGATION
-------------------------------------------------------------------------
[Files]          Create, open, or save ration.
[<]              Previous screen.
[Goto]           Jump to another input section.
[>]              Next screen.
[Feed Analysis]View or edit nutrient analysis of feed.
[Add]            Add new feed.
[Edit]           Edit existing feed.
[Dbl Click]      Double click on a row in the list box invokes Edit button.
[Delete]         Delete existing feed.
[Help]           Display help message.
[Show Schdl]     Display loading and unloading schedules.
[Main Menu]      Exit and return to main menu
-------------------------------------------------------------------------
```

LIBRARY CODE
------------
  Enter the set of feeds that you wish to consider for ration formulation
  into the table on this page.  If you are evaluating an existing ration,
  enter all of the feeds that are in the ration as well as the amounts as
  fed per day.

  To ADD a feed to the list:  use the arrow keys to move to a blank line
  in the table.  Then press the <Add> button.

  Feed library codes are as follows:
    STD - the information for this feed is stored in the standard library
          of feeds supplied by the program.
    ALT - the feed information is contained in an alternate feed library
          which has been created or modified by you, the program user.
    NEW - the feed information is not contained in any existing feed

library.  You must enter into the program the entire nutrient
analysis for a new feed, since the information is not stored
anywhere else.

   To DELETE a feed from the list:  use the arrow keys to move to the line
   in the table containing the feed that you wish to delete.  Remove the
   feed by pressing the <Delete> button.

   To EDIT a feed:  move to the line that you want to edit and then press
   the <Edit> button.

FEED NUMBER
-----------
   Each feed in the standard and alternate feed libraries has a unique
   number assigned to it.  If you are entering information for a new feed,
   you may assign it any number you wish.  If you are selecting a feed
   from one of the existing feed libraries and you do not know its
   corresponding number, press the arrow in the choice list to get a list
   of all feed numbers and names in the selected library.  You can then use
   the arrow keys to move to the feed that you want.

FEED NAME
---------
   Enter a descriptive name for the feed.

FEEDING METHOD
--------------
   Enter one of following feeding methods:

        Mix  - this feed will be included in a mix
        Sep  - this feed will fed separately from the mix
        Both - a portion of this feed will be included in the mix;
               the rest will be fed separately

AMOUNT IN RATION
----------------
   You can edit the actual amount of the feed in the ration and thus change
   the content and nutrient analysis of the ration.

   You should enter all feed amounts on an as fed basis, lbs or kgs
   per day.

FEED ANALYSIS
-------------
   If you wish to view or edit the nutrient analysis for a particular feed,
   press the <Feed Analysis> button. The program will then display the
   entire nutrient analysis for the feed.

   If you are entering information for a NEW feed, you must fill in the
   entire nutrient analysis, since the information for a new feed is not
   already stored in one of the feed libraries.

   All changes are local to this particular ration data file and does not
   change the nutrient analysis of that particular feed in the standard or
   alternate feed libraries.

INTERNATIONAL FEED NUMBER
-------------------------
   This field is optional.  Common feed stuffs are assigned a 6-digit
   international feed number (IFN) for identification and computer
   manipulation.  The first digit in the IFN represents the international
   feed classes:

        1.   Dry forages and roughages
        2.   Pasture, range plants, and forage fed fresh
        3.   Silage
        4.   Energy feeds
        5.   Protein supplements

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```
        6.   Mineral supplements
        7.   Vitamin supplements
        8.   Additives


DRY MATTER (PERCENT AS FED)
---------------------------
  The dry matter percentage of a feed is 100 minus the moisture percentage
  of the feed.  If a feed is totally dry, it has 100% dry matter.  If, for
  example, the feed has a 20% moisture content, its dry matter percentage
  would be 80.

FEED TYPE
---------
  Each feed must be classified as either a roughage or a concentrate.
  Roughages are feeds containing a high amount of fiber, such as alfalfa
  hay and corn silage.  All other feeds are concentrates.

MVI FACTOR
----------
  Each roughage feed has a corresponding maximum voluntary intake (MVI)
  factor (range:  1.0 to 1.4: excellent quality = 1.0, fair quality = 1.4).
  If an MVI factor for a forage is omitted, the default value = 1.4.

FEED GROUPS
-----------
  Each feed may be a member of one or more groups of similar feeds.  By
  placing the feed into a group, you can put constraints on the group of
  feeds for ration formulation.  You can also choose to view the
  nutrient analysis for a particular feed group in the ration display
  portion of the program.

  All feeds with an identical group number are considered to be members
  of the same group.

DRY MATTER BASIS
----------------
  This field allows you to choose the dry matter basis to use for editing
  the nutrient analysis of the feed.  Most feed nutrient analyses are
  reported on a 100% dry matter basis.  However, if you have nutrient data
  on other than a 100% dry matter basis, enter the dry matter percentage
  used for the analysis and corresponding nutrient data, and the program
  will convert everything to 100% dry matter internally.

  If you wish to enter data on an "as fed" basis, enter 0, and the program
  will insert the correct basis, as fed.
```

# DELIVERY MODULE: MIX FEED LIST

```
TAURUS 2014 USA [DELIVERY] DEMO.TAU                                          [X]
┌─ MIX FEED LIST: ────────────────────────────────────────────────────────────┐
│   Lib  Feed                    RATION AMOUNT      AMOUNT IN MIX      ORDER    │
│   Code No.   Name              lb/day as fed      lb/day as fed      in mix   │
│  ┌─────────────────────────────────────────────────────────────────────────┐│
│  │ STD  563   RICE hulls          11.29571           11.29571          1      ││
│  │ STD  267   FAT animal hydrol    1.17704            1.17704          2      ││
│  │ STD  675   UREA 45% nitrogen    0.14651            0.14651          3      ││
│  │ STD  430   OYSTERSHELL ground   0.06892            0.06892          4      ││
│  │ STD  162   CALCIUM phos di      0.02267            0.02267          5      ││
│  │ STD  692   WHEAT grain SRW      0.00000            0.00000          6      ││
│  │ STD  399   OAT hay dough stage  0.00000            0.00000          7      ││
│  │ STD  383   MOLASSES cane        0.00000            0.00000          8      ││
│  │ STD  154   BUCKWHEAT grain      0.00000            0.00000          9      ││
│  │ STD   30   ALMOND hulls 15% CF  0.00000            0.00000         10      ││
│  │                                                                           ││
│  └─────────────────────────────────────────────────────────────────────────┘│
│                                                                              │
│  [Files] [<] [Go to] [>]    [Edit] [Up Λ] [Dn V] [Help]    [Show Sched.] [Main Menu] │
└──────────────────────────────────────────────────────────────────────────────┘
```

Delivery Module: Mix Feed List dialog box.

```
--------------------------------------------------------------------------
NAVIGATION
--------------------------------------------------------------------------
[Files]        Create, open, or save ration.
[<]            Previous screen.
[Goto]         Jump to another input section.
[>]            Next screen.
[Edit]         Edit mix amount.
[Dbl Click]    Double click on a row in the list box invokes Edit button.
[Up]           Move up existing feed.
[Dn]           Move down existing feed.
[Help]         Display help message.
[Show Schdl]   Display loading and unloading schedules.
[Main Menu]    Exit and return to main menu
--------------------------------------------------------------------------
```

LIBRARY CODE
------------
  Feed library codes are as follows:
     STD - the information for this feed is stored in the standard library
           of feeds supplied by the program.
     ALT - the feed information is contained in an alternate feed library
           which has been created or modified by you, the program user.
     NEW - the feed information is not contained in any existing feed
           library.  You must enter into the program the entire nutrient
           analysis for a new feed, since the information is not stored
           anywhere else.

FEED NUMBER
-----------
  Each feed in the standard and alternate feed libraries has a unique
  number assigned to it.

FEED NAME
---------
  Each feed has a descriptive name..

AMOUNT IN RATION
----------------
  This field shows the actual amount of the feed in the ration.

AMOUNT IN MIX
-------------
  Enter the amount of this feed that is to be included in the mix.

  You should enter all feed amounts on an as fed basis, lbs or kgs
  per day.

ORDER IN MIX
------------
  The order in mix specifies the order that this feed is to be loaded
  onto the mixer.

  Press the <Up> button to move up the feed in the list. Press the <Dn>
  button to move down the feed in the list.

# DELIVERY MODULE: SEPARATE FEED LIST



```
TAURUS 2014 USA [DELIVERY] DEMO.TAU                                          [X]

  SEP FEED LIST:
      Lib  Feed                      RATION AMOUNT      FED SEPARATELY     FEEDINGS
      Code No.   Name                lb/day as fed      lb/day as fed      times/day

       STD   18   ALFALFA mid bloom      0.00000           0.00000            1
       STD  231   CORN grain flaked      8.57144           8.57144            1




    Files    <    Go to    >            Edit    Help           Show Sched.    Main Menu
```

Delivery Module: Separate Feed List dialog box.


---------------------------------------------------------------------------
NAVIGATION
---------------------------------------------------------------------------
[Files]        Create, open, or save ration.
[<]            Previous screen.
[Goto]         Jump to another input section.
[>]            Next screen.
[Edit]         Edit separate amount.
[Dbl Click]    Double click on a row in the list box invokes Edit button.
[Help]         Display help message.
[Show Schdl]   Display loading and unloading schedules.
[Main Menu]    Exit and return to main menu
---------------------------------------------------------------------------

LIBRARY CODE
-----------
  Feed library codes are as follows:
    STD - the information for this feed is stored in the standard library
          of feeds supplied by the program.
    ALT - the feed information is contained in an alternate feed library
          which has been created or modified by you, the program user.
    NEW - the feed information is not contained in any existing feed
          library.  You must enter into the program the entire nutrient
          analysis for a new feed, since the information is not stored
          anywhere else.

FEED NUMBER
-----------
  Each feed in the standard and alternate feed libraries has a unique
  number assigned to it.

FEED NAME
---------
  Each feed has a descriptive name..

```
AMOUNT IN RATION
----------------
  This field shows the actual amount of the feed in the ration.

AMOUNT FED SEPARATELY
---------------------
  Enter the amount of this feed that is to be fed separately from the mix.

  You should enter all feed amounts on an as fed basis, lbs or kgs
  per day.
```

# DELIVERY MODULE: OUTPUT

```
--------------------------------------------------------------------------
NAVIGATION
--------------------------------------------------------------------------
[Files]         Create, open, or save profit projection files.
                The print option is under Files button.
[<]             Previous screen.
[Goto]          Jump to another output section.
[Dbl Click]     Double click on a row in the list box invokes Goto button.
[>]             Next screen.
[Feed Group]    Select feed group to display.
[Help]          Display help message.
[Input]         Jump to input screen.
[Main Menu]     Exit and return to main menu.
--------------------------------------------------------------------------
```

```
LOADING SCHEDULE
----------------
```
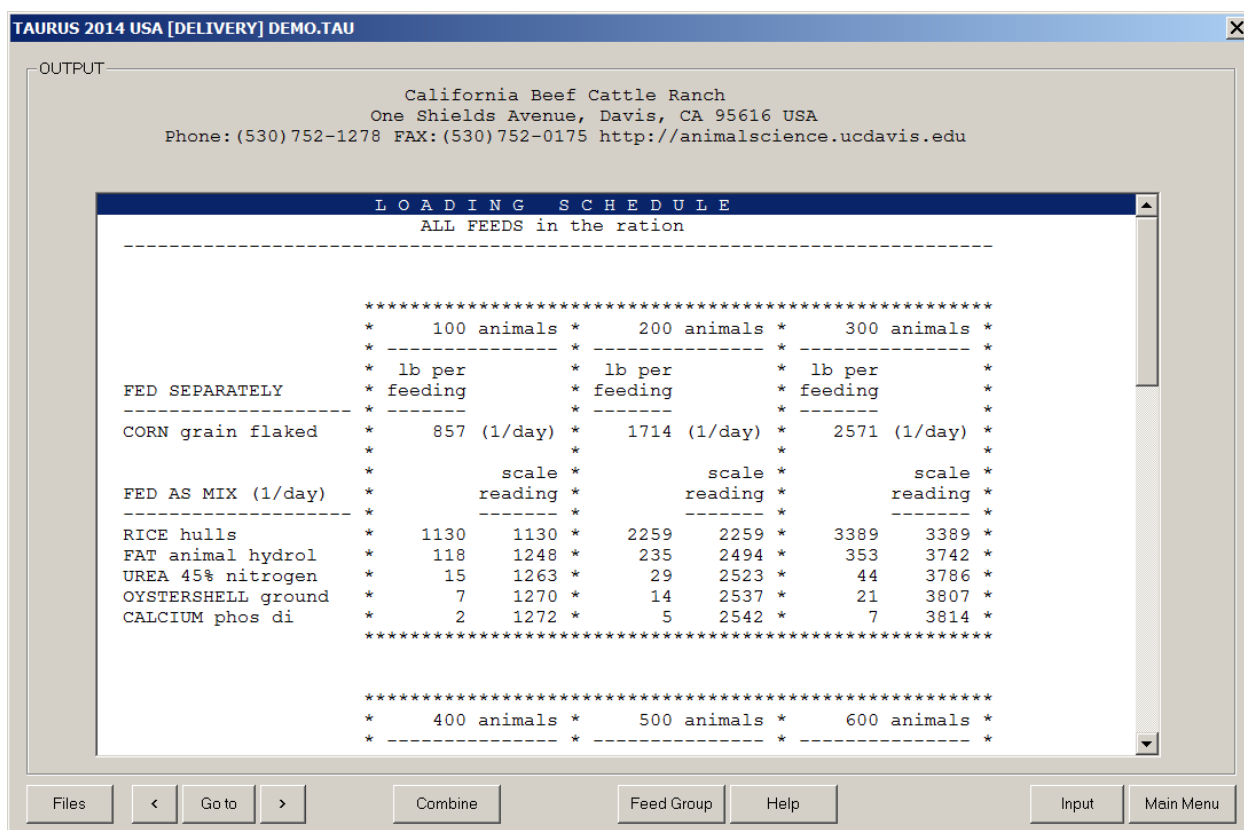


Delivery Module: Loading Schedule.

This section displays the loading schedules for all feeds used in
the ration, or for a feed group selected by using the <Feed Group> button.

Loading schedules are displayed for both mix feeds and feeds fed
separately from the mix.  A maximum of twelve schedules will be printed.

For each feed fed separately, the schedule shows the amount to be fed
at each feeding.

For each feed in the mix, the schedule shows the actual amount of the
feed to be added to the mixer, along with the mixer scale reading that
will be obtained after the feed has been added.  Mix feeds are added in
the order that you previously specified on the Mix Feed List form.

```
TAURUS 2014 USA [DELIVERY] DEMO.TAU                                          [X]

┌OUTPUT─────────────────────────────────────────────────────────────────────┐
│                     California Beef Cattle Ranch                            │
│                  One Shields Avenue, Davis, CA 95616 USA                    │
│         Phone:(530)752-1278 FAX:(530)752-0175 http://animalscience.ucdavis.edu │
│                                                                            │
│                                                                        [▲] │
│              U N L O A D I N G   S C H E D U L E                            │
│                     ALL FEEDS in the ration                                │
│      -------------------------------------------------------------------   │
│                                                                            │
│                                                                            │
│               ********************************************************     │
│               *     100 animals *    200 animals *    300 animals *        │
│               * --------------- * --------------- * --------------- *      │
│               *  lb per         *  lb per         *  lb per         *      │
│  RATION INGREDIENTS * feeding    * feeding         * feeding         *     │
│  ------------------ * -------    * -------         * -------         *     │
│  CORN grain flaked  *     857 (1/day) *   1714 (1/day) *   2571 (1/day) *  │
│  FEEDS IN MIX       *    1271 (1/day) *   2542 (1/day) *   3813 (1/day) *  │
│               ********************************************************     │
│                                                                            │
│                                                                            │
│               ********************************************************     │
│               *     400 animals *    500 animals *    600 animals *        │
│               * --------------- * --------------- * --------------- *      │
│               *  lb per         *  lb per         *  lb per         *      │
│  RATION INGREDIENTS * feeding    * feeding         * feeding         *     │
│  ------------------ * -------    * -------         * -------         *     │
│  CORN grain flaked  *    3429 (1/day) *   4286 (1/day) *   5143 (1/day) *  │
│  FEEDS IN MIX       *    5084 (1/day) *   6355 (1/day) *   7627 (1/day) *  │
│               ********************************************************     │
│                                                                        [▼] │
│                                                                            │
│  [Files]  [<] [Go to] [>]   [Combine]    [Feed Group] [Help]   [Input] [Main Menu] │
└────────────────────────────────────────────────────────────────────────────┘
```

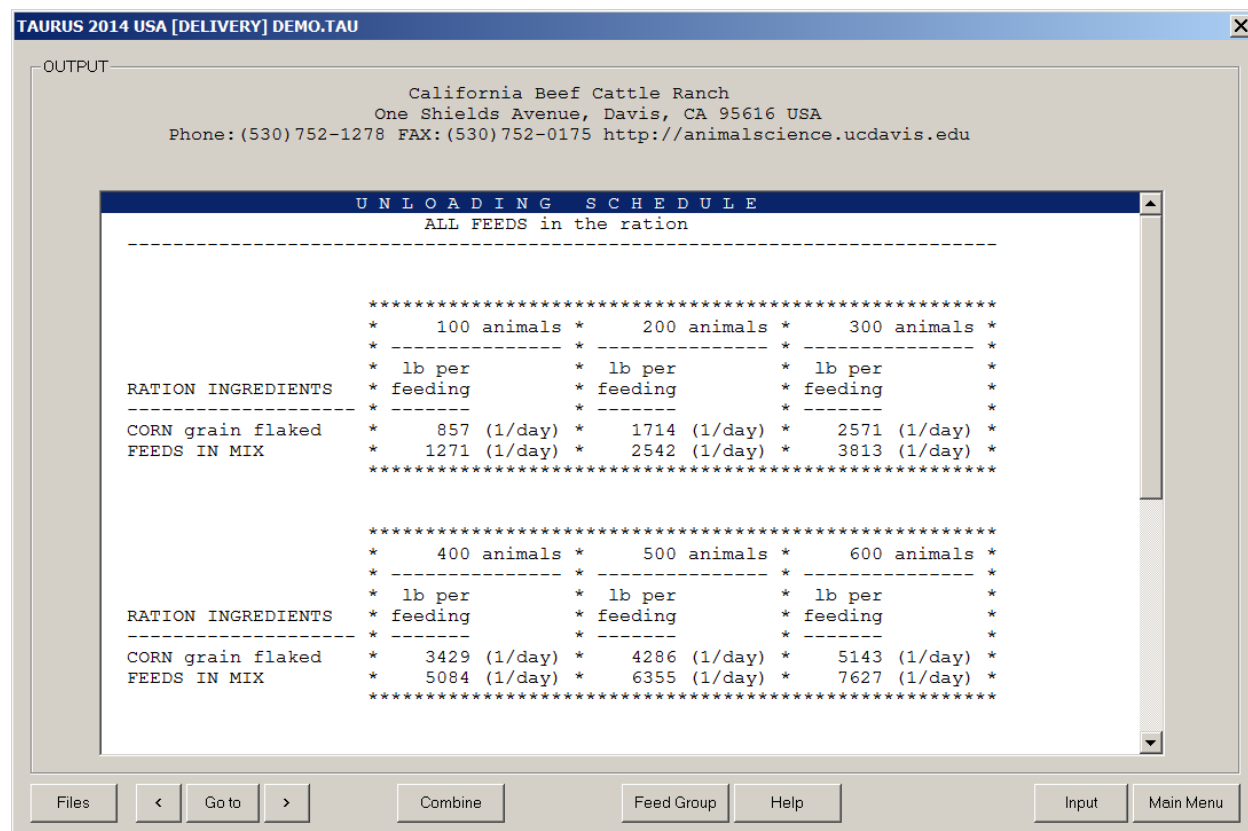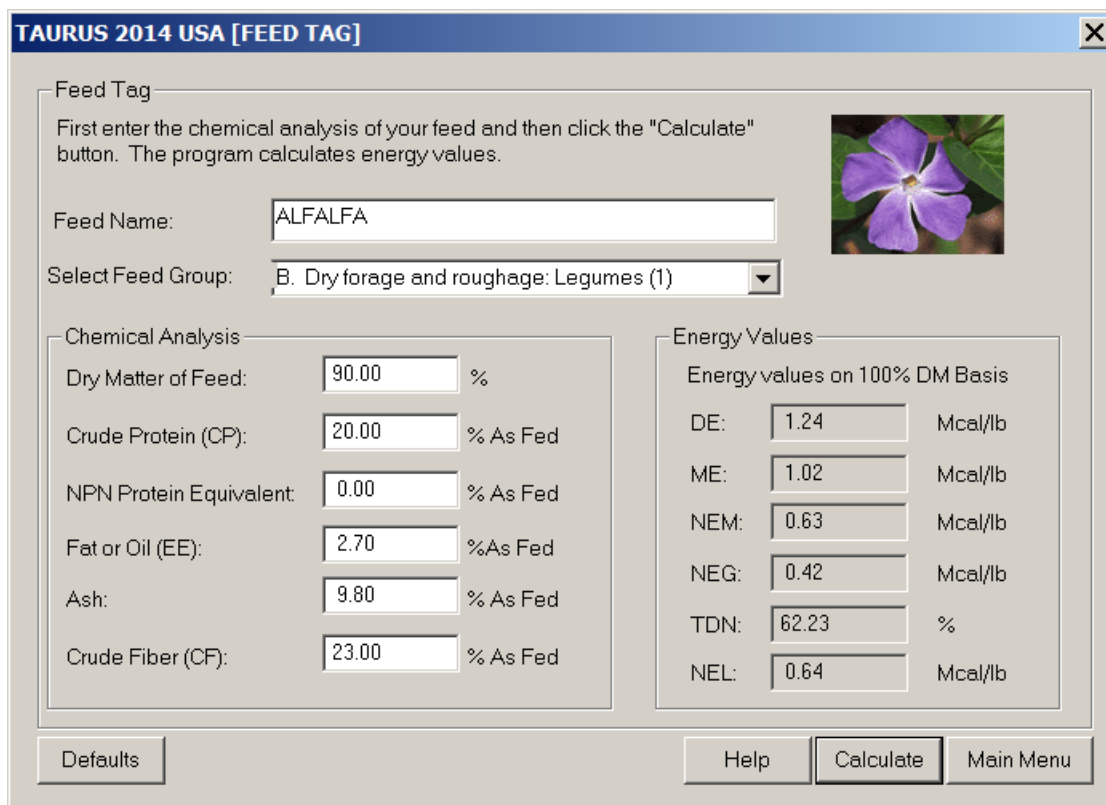Delivery Module: Unloading Schedule.

This section displays the unloading schedules for all feeds used in
the ration, or for a feed group selected by using the <Feed Group> button.

Unloading schedules are displayed for the mix feed, along with all feeds
fed separately from the mix.  A maximum of twelve schedules will be
printed.

For each feed fed separately and for the mix, the schedule shows the
amount to be unloaded for each feeding.

The number of feedings per day is displayed in parentheses after the
amount to be unloaded.

# FEEDTAG



FEEDTAG dialog box.

```
------------------------------------------------------------------------
NAVIGATION
------------------------------------------------------------------------
[Defaults]      Set the input fields to default values.
[Help]          Display help message.
[Calculate]     Calculate energy values.
[Main Menu]     Exit and return to main menu.
------------------------------------------------------------------------
```

FEEDTAG utilizes a feed group category and user specified proximate analyses values for crude protein, ether extract, ash and crude fiber.  Based on this chemical analyses and a regression equation for that group, FEEDTAG calculates a value for digestible energy content of the feed. FEEDTAG then derives values for metabolizable energy, total digestible nutrients, net energy for maintenance, net energy for gain and net energy for lactation from this digestible energy value (NRC, 1984).  The program displays all the energy values for the feed in question on the screen.

Feeds are grouped into five categories based on their International Feed Number, with the exception of forages (group 1), which were further divided into legumes and non-legumes.

```
GROUP           CATEGORY
-----            --------------------------------
Group A         General
Group B         Dry forage and roughage: Legumes
Group C         Dry forage and roughage: Non legumes
Group D         Pasture and range plants
Group E         Silage
Group F         Energy feeds
Group G         Protein supplements
```

**FEEDTAG INPUT**

In the input screen you will enter all of the information (feed group, crude protein, etc) that is required to estimate the energy contents of the feed. The input screen consists of the following fields:

FEED NAME
Enter the name of the feed that you wish to calculate energy values for.

FEED GROUP
Each feed group has its own equation for estimating energy values.  So, be careful in selecting your group.  If you are not sure choose Group A (General).

DRY MATTER
If you want to enter the chemical analysis on the 100 % D.M. basis, enter 100 in this field.  Usually the chemical analysis values on the feed tags are on as fed basis, in this case you would enter the dry matter contents of the feed (for example 90%) in this field. In either case the program will give you the energy contents of the feed on a 100% dry matter basis.

CRUDE PROTEIN
Enter the crude protein contents of the feed (%).

NPN PROTEIN EQUIVALENT
Enter the Non-Protein Nitrogen contents of the feed.

FAT OR OIL (E.E.)
Enter the ether extract contents of the feed (%).

ASH
Enter the ash contents of the feed (%).

CRUDE FIBER
Enter crude fiber contents of the feed (%).

**FEEDTAG OUTPUT**

Press the "Calculate" button and the program calculates the energy values of the feed. The FEEDTAG output is shown at the bottom right corner of the input screen.  It consists of energy values: DE Mcal/lb., ME Mcal/lb, NEm Mcal/lb, NEg Mcal/lb, TDN %, and MEl Mcal/lb.  All energy values are on 100 % dry matter basis.

At this time you can print the output by holding down the **Alt** key and pressing the **PrtSc** (print screen) key.

The methods used for predicting energy values of feedstuffs are based in regression equations developed from data obtained from digestibility studies.  These prediction equations were developed based on chemical analysis and regression equations. The program calculates energy values, using the following algorithm:

Step 1. Converts all values to 100% DM basis.

Step 2. Calculates Digestible Energy, Mcal/kg, for different groups:

    Grp A: DE= 3.916828-0.00812  *CP+0.04554  *EE-0.0176 *ash-0.0422  *CF
    Grp B: DE= 2.811904+0.0209413*CP+0.006492 *EE+0.01302*ash-0.0274  *CF
    Grp C: DE= 3.264743+0.06363  *CP-0.0761   *EE-0.0508 *ash-0.0283  *CF
    Grp D: DE= 3.723255+0.002459 *CP+0.0815818*EE-0.0211 *ash-0.036135*CF
    Grp E: DE= 3.681242-0.0130   *CP+0.04553  *EE-0.0328 *ash-0.0284  *CF
    Grp F: DE= 3.729697+0.008047 *CP+0.04582  *EE-0.0393 *ash-0.0392  *CF
    Grp G: DE= 4.706482-0.0158   *CP+0.034633 *EE-0.0241 *ash-0.0598  *CF

Step 3. Corrects for Non Protein Nitrogen Protein Equivalent:
     DE = DE * (1-(CP * NPN/28200))

Step 4. All other energy values are calculated by using DE.

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```
Metabolizable Energy, Mcal/kg:
ME = 0.82 * DE

Net Energy for Maintenance, Mcal/kg:
NEM = 1.37 * ME - 0.138 * ME * ME + 0.0105 * ME * ME * ME - 1.12

Net Energy for Gain, Mcal/kg:
NEG = 1.42 * ME - 0.147 * ME * ME + 0.0122 * ME * ME * ME - 1.65

Total Digestible Nutrients, %:
TDN = 100 * (DE/4.4)

Net Energy for Lactation, Mcal/kg:
NEL = 0.0245 * TDN - 0.12
```

Step 5. The Energy values finally are converted to the user-specified system
(English or Metric).

# PROFIT PROJECTION MODULE

PROFIT PROJECTION will allow the user to, under user's specified parameters, project the performance (i.e. financial) of a cattle feeding operation.  The program takes this pre-specified information (i.e. CATTLE TYPE, CATTLE COST, CATTLE PRICE, FEEDING INFORMATION, etc.) and with the use of PROJECTION MODELS (i.e. OLTLJEN'S INTAKE MODEL, NRC'S GAIN MODEL, etc.) it PROJECTS the financial performance of the enterprise. PROFIT PROJECTION creates a CLOSE-OUT REPORT containing financial and other performance information in an easy to use and understand format, offering also the option to customize the reports.

## PROFIT PROJECTION INPUT

The input section consists of three screens: General Information Screen, Phase Screen, and Calendar Screen. The General Information Screen contains information about breed, frame and sex, as well as purchasing and selling price.  The Phase Information Screen contains data about the rations used in the feeding phases.  The Calendar Screen contains seasonal adjustments in feed intake and maintenance requirements.

### GENERAL INFORMATION SCREEN



Profit Projection: General Information dialog box.

```
-----------------------------------------------------------------------
NAVIGATION
-----------------------------------------------------------------------
[Files]        Create, open, or save profit projection files.
[<]            Previous screen.
[Goto]         Jump to another input section.
[>]            Next screen.
[Help]         Display help message.
```

```
[Output]      Run simulation and project profit.
[Main Menu]   Exit and return to main menu.
------------------------------------------------------------------------

TITLE
-----
  Enter a name and/or address or other identification for your profit
  projection on these two lines.

WEIGHT UNIT
-----------
  You may choose to enter data using either the English or the metric
  system.

  Enter  lb  to display all input and output in English units.
  Enter  kg  to display all input and output in metric units.

  The program will automatically convert any data already entered
  to the unit selected.

  The weight unit in the Profit Projection module is independent of
  weight unit in the formulation and evaluation modules.

BREED
-----
  Enter English, Holstein, Exotic, Brahman, or Other.  The breed is used
  to adjust intake and gain equations.  If you select the Other breed,
  these adjustments will be ignored.

FRAME
-----
  Enter Small, Medium, or Large.  You can use the minus and plus signs
  to indicate the intermediate values: Small, Small-, Small+.

  Frame score describes the skeletal size of cattle and depends on age,
  hip height, and nutrition level.

SEX
---
  Enter Steer, Heifer or Bull.

FEED IMPLANT
------------
  Enter a number from 0 to 9.  The value 5 indicates the NRC standard.
  Values below 5 will reduce intake and gain and values above 5 will
  increase intake and gain.  The default adjustments are contained in a
  text file called PPIMPLAN.CFG.  This file can be modified by using a
  text editor such as Notepad. Do not use Microsoft Word or any other
  word processor that formats the text.
  The current values are as follows:

      Implant    %Intake   %Gain
      Number       Adj      Adj
      =======    =======   =====
          0         -14      -8
          1         -12      -7
          2          -9      -6
          3          -6      -4
          4          -3      -2
          5           0       0
          6           1       1
          7           2       2
          8           3       3
          9           4       4


INITIAL CONDITION SCORE
-----------------------
```

Enter 1 through 9.

      Condition score relates to the degree of fatness.

         1 = Emaciated
         5 = Average
         9 = Obese

IN DATE
-------
   Enter the month, day and year of the starting day of the projection.

HEAD IN
-------
   Number of head of cattle received at feedlot.  The default is 100 heads.

PAY WEIGHT
----------
   Purchase weight of animals, lb/head or kg/head.

IN WEIGHT
---------
   Weight of animals on arrival, lb/head or kg/head.  The difference
   between purchase weight and in-weight is the shrinkage-in.

PURCHASE PRICE
--------------
   Purchase cost, $/cwt.

COMMISSION BUY
--------------
   Fee involved in buying the cattle, $/head.

TRANSIT
-------
   Cost of transporting cattle to feedlot, $/head.

ORIGIN INSPECTION FEE
---------------------
   Inspection fee at origin or in transit, $/head.

PASTURE MOVEMENT FEE
--------------------
   Fees for inspecting cattle when moving to pasture, $/head.

SELLING PAY WEIGHT
------------------
   Weight of animals on departure from feedlot WITH shrinkage.

SHRINKAGE OUT
-------------
   Percent shrinkage after leaving feedlot.  Usually 4%.

SELLING PRICE
-------------
   Estimated selling price of the cattle, $/cwt.

COMMISSION SELL
---------------
   Fee involved in selling the cattle, $/cwt.

BRAND INSPECTION FEE
--------------------
   Fee involved for brand inspection, $/head.

BEEF CHECK OFF FEE
------------------
   Fee for beef research and beef promotion, $/head.

```
MARGIN(EQUITY)
--------------
  Investment in cattle on which no interest is charged, $/head.

INTEREST RATE
-------------
  Cost of borrowing money for cattle and feed.  Percent per year, such as
  9% or 12%, etc.

DEATH LOSS (1-21 DAYS)
----------------------
  Death loss that occurs during the first 21 days of feeding period.  The
  default value is 1.50 percent.

DEATH LOSS (22+ DAYS)
---------------------
  Death loss that occurs after 21 days.  The default value is 0.50 percent.

PROC-MEDICAL COST
-----------------
  Processing and medical costs including implants, $/head.

MGT/YARDAGE FEE
---------------
  Cost of management and yardage of the cattle.  Cent/head.day.

OTHER FEES
----------
  Other costs that occur in feeding the cattle, $/head.

PHASE
-----
  You can have up to five feeding phases.

NET GAIN METHOD
---------------
  There are three different methods for calculating Net Gain:

      1. High Plain Method:  From Pay-Weight to Pay-Weight.
             This is used by customers and shows actual number.
      2. Southern California Method:  From In-Weight to Pay-Weight.
             This is used by feedlot operators and shows a higher
             number.
      3. Scientific Method:  From In-Weight to Finish-Weight.
             This is used by university people and shows a very high
             number.

  The default is the SPA standard Pay-Weight to Pay-Weight method.

INTAKE EQUATION
---------------
  Select the equation for calculating daily intake.  There are six
  equations:  Oltjen, NRC, Plegge, Fox, Thornton, and Gill.

  The NRC intake equation is that given in the NRC (1984) publication.
  It adjust intake so that daily gain is constant.

  OLTJEN was developed for young cattle fed in California feedlots.
  The PLEGGE equation fits calves and yearling fed in the Upper Midwest,
  usually part corn silage diets.  It is not useful for light calves,
  giving abnormally low intakes.

  FOX is a general purpose equation, based on adjustments for a wide
  range of situations.

  THORNTON and GILL are equations for feedlot cattle, and were developed
  in High Plains feedlots.
```

The GILL equation is more sensitive to the weight of the cattle when
put on feed.

THORNTON should only be used with yearlings.

GAIN EQUATION
-------------
  Select the equation for calculating daily gain of cattle.  There are
  three equations: NRC 1984, NRC 1976, and Oltjen et al.(1986).  The
  Oltjen equation also predicts quality and yield grades.

SHOW DAILY PROFIT
-----------------
  Enter Y to show daily profit, breakeven to sell and selling price
  during iteration.  This will slow down the program, but you can
  determine when is best to sell the cattle.  Selling price will be
  determined using a sliding scale from initial purchase price to final
  selling price.

## PHASE INFORMATION



```
TAURUS 2014 USA [PRFTPRJ]                                              ↔ _ □ X

 PHASE INFORMATION

                                      Intake
                   Ration            as pcnt   Fd Cost    <--- Ending Conditions --->
        Phase      Name       Age    body wt    $/ton    Days     wt lb      Grade

          1        RECEIVE    Calf     1.30 %    85.00      7      0.00
          2        GROW       Calf     1.85 %   100.00     14      0.00
          3        FINISH     Calf     0.00 %   110.00             0.00




    Files    <   Go to   >            Edit   Help                Output   Main Menu
```

Profit Projection: Phase Information dialog box.

```
-----------------------------------------------------------------------
NAVIGATION
-----------------------------------------------------------------------
[Files]        Create, open, or save profit projection files.
[<]            Previous screen.
[Goto]         Jump to another input section.
[>]            Next screen.
[Edit]         Edit phase information
[Dbl Click]    Double click on a row in the list box invokes Edit button.
[Help]         Display help message.
[Output]       Run simulation and project profit.
[Main Menu]    Exit and return to main menu.
-----------------------------------------------------------------------
```

Click the <Edit> button to edit the phase information.

Edit Phase Information dialog box.

PHASES
------
  You can have up to five feeding phases. The number of phases is
  controlled from the previous screen, General Information Screen.
  To increase or decrease number of phases, go to previous screen
  and modify the value of Phases.

RATION NAME
-----------
  Enter any name up to eight characters for this ration, for example:
  RECEIVE, GROW, FINISH.

DRY MATTER
------------------
  Percent dry matter of feed.

NEm
---
  Net energy for maintenance of ration, Mcal/lb or Mcal/kg on 100% DM
  basis.  If you leave this field as zero, the program will calculate the
  NEm value using the NEg value.

NEG
---
  Net energy for gain of ration, Mcal/lb or Mcal/kg on 100% DM basis.
  If you leave this field as zero, the program will calculate the NEg
  value using the NEm value.

FEED COST
---------

```
  Total feed cost, $/ton 0r $/m ton.

FEED MARKUP
-----------
  Extra cost in milling and feeding the ration, $/ton or $/m ton.

FEED WASTE
----------
  Percent of feed that is wasted during the feeding process.

ADDITIVE
--------
  Addition of ionophore.

AGE
---
  Age of animal, either calf or yearling.  Yearlings eat more and exhibit
  more compensatory gain than calves.

FEED INTAKE PCT
---------------
  Feed intake as percent of live body weight on 100% Dry Matter basis.
  If you enter a value other than zero, it will override the Feed Intake
  Equation.  For example, for an animal with 750 lb live body weight, a
  value of 1.3% will force in an intake of 9.75 lb/day.  If the dry matter
  of ration is 90%, then feed intake will be 10.83 lb/day on as fed basis.

  Use this column for initial phases, when the animals are newly arrived
  and are recovering from stress.

ENDING WEIGHT
-------------
  Pay-Weight of animal at the end of a feeding phase.

ENDING DAYS
-----------
  Days fed in a feeding phase.

ENDING GRADE
------------
  Quality Grade at the end of feeding phase.  This option works only with
  the Oltjen gain equation, because only the Oltjen model can estimate
  Percent Fat and Quality Grade is calculated using Percent Fat.

  Quality Grade =  2.66 + 0.249 * Percent Fat
  Yield Grade   = -1.60 + 0.163 * Percent Fat

  Quality Grade   Name                 Quality Grade   Name
  =============   =======              =============   =======
   0.5 - 6.499    STD OR<              10.5 -11.499    CHOICE
   6.5 - 7.499    SELECT-              11.5 -12.499    CHOICE+
   7.5 - 8.499    SELECT               12.5 -13.499    PRIME-
   8.5 - 9.499    SELECT+              13.5 -14.499    PRIME
   9.5 -10.499    CHOICE-              14.5 and more   PRIME+
```

## CALENDAR INFORMATION

```
TAURUS 2014 USA [PRFTPRJ]                                    ↔ _ □ X

  CALENDAR INFORMATION

      Month         Feed Intake Adj %(+/-)   Maintenance Adj %(+/-)

      January                0.00                   0.00
      February               0.00                   0.00
      March                  0.00                   0.00
      April                  0.00                   0.00
      May                    0.00                   0.00
      June                   0.00                   0.00
      July                   0.00                   0.00
      August                 0.00                   0.00
      September              0.00                   0.00
      October                0.00                   0.00
      November               0.00                   0.00
      December               0.00                   0.00




    Files    <    Go to    >        Edit    Help        Output   Main Menu
```

Profit Projection: Calendar Information dialog box.

```
--------------------------------------------------------------------------
NAVIGATION
--------------------------------------------------------------------------
[Files]        Create, open, or save profit projection files.
[<]            Previous screen.
[Goto]         Jump to another input section.
[>]            Next screen.
[Edit]         Edit feed intake adj and maintenance adj.
[Dbl Click]    Double click on a row in the list box invokes Edit button.
[Help]         Display help message.
[Output]       Run simulation and project profit.
[Main Menu]    Exit and return to main menu.
--------------------------------------------------------------------------
```

Click the <Edit> button to edit the calendar information.

Edit Calendar Information dialog box.

```
FEED INTAKE ADJ
---------------
  Percent adjustment of feed intake.  Enter values from 1 - 100.  For
  a ten percent increase in intake enter 10.00.  For five  percent
  decrease in intake enter -5.00.  Usually the intake decreases in the
  warmer months.

MAINTENANCE ADJ
---------------
  Percent adjustment in maintenance requirement.  Enter values from
  1 - 100.  For example for ten percent increase in maintenance
  requirement enter 10.00.  For five percent decrease in maintenance
  requirement enter -5.00.  Usually in the colder months the maintenance
  requirement increases.
```

# PROFIT PROJECTION OUTPUT

```
TAURUS 2014 USA [PRFTPRJ]                                                    ⟷ _ □ X
┌CLOSE OUT:────────────────────────────────────────────────────────────────────────┐
│                          California Beef Cattle Ranch                              │
│                       One Shields Avenue, Davis, CA 95616 USA                      │
│              Phone:(530)752-1278 FAX:(530)752-0175 http://animalscience.ucdavis.edu│
│  ┌────────────────────────────────────────────────────────────────────────────┐▲ │
│  │ Demo                                                                         │  │
│  │ University of California, Davis                                              │  │
│  │ Date-in   10/26/2014    Date-out  07/02/2015    Period length:  250 days     │  │
│  │ Head-in         100.00  Head-out        98.00                                │  │
│  │ ------------------------------------------------------------------------     │  │
│  │                                            Total/Lot       Avg/Hd            │  │
│  │ ------------------------------------------------------------------------     │  │
│  │ A. PURCHASES                                                                 │  │
│  │    Pay-weight, lb(at auction, etc)          45000.00        450.00           │  │
│  │    Cattle cost, $ (at auction, etc)         42750.00        427.50           │  │
│  │    In-weight,  lb(upon arrival at lot)      41000.00        410.00           │  │
│  │    Transit shrink, %                                          8.89           │  │
│  │    Laid-in Costs, $/cwt                     45454.00        101.01 Buy PayWt  │  │
│  │                                                                              │  │
│  │ B. PERFORMANCE                                                               │▓ │
│  │    In-weight,  lb(upon arrival at lot)      41000.00        410.00           │▓ │
│  │    Feedlot death loss, %                                     2.00            │  │
│  │    Net gain, lb (  PayWt to PayWt)          63199.00        644.89           │  │
│  │    Total head.days & Avg days-on-feed       24538.50        250.39           │  │
│  │    ADG, lb                                                   2.58            │  │
│  │    Total feed as fed, lb                   367758.91       3752.64           │  │
│  │    Daily feed as fed                    1468.73 lb/day     14.99 lb/hd.day    │  │
│  │    Feed efficiency, lb as fed/lb gain                        5.82            │  │
│  │                                                                              │  │
│  │ C. COSTS                                                                     │  │
│  │    Cattle cost, $ (at auction, etc)         42750.00        427.50           │  │
│  │    Laid-in costs, $                         45454.00        463.82 Head-Out   │▼ │
│  └────────────────────────────────────────────────────────────────────────────┘  │
│  ┌───────┐ ┌───┐ ┌──────┐ ┌───┐                     ┌──────┐ ┌───────┐ ┌──────────┐│
│  │ Files │ │ ‹ │ │ Go to│ │ › │                     │ Help │ │ Input │ │ Main Menu││
│  └───────┘ └───┘ └──────┘ └───┘                     └──────┘ └───────┘ └──────────┘│
└───────────────────────────────────────────────────────────────────────────────────┘
```

Profit Projection: Closeout Report.

```
TAURUS 2014 USA [PRFTPRJ]                                                    ⟷ _ □ X
┌DAILY ITERATIONS:──────────────────────────────────────────────────────────────────┐
│                          California Beef Cattle Ranch                              │
│                       One Shields Avenue, Davis, CA 95616 USA                      │
│              Phone:(530)752-1278 FAX:(530)752-0175 http://animalscience.ucdavis.edu│
│  ┌────────────────────────────────────────────────────────────────────────────┐▲ │
│  │              Live   Intake    Live   BrkEven  Selling                        │  │
│  │              Weight     DM    Gain   to Sell   Price    Profit               │  │
│  │ Date       Day   lb  lb/day  lb/day   $/cwt    $/cwt   $/head Grade           │  │
│  │ ========== === ====== ====== ====== ======= ======= ======= =======          │  │
│  │ 10/26/2014   1  410.0   5.54  -0.18  115.52   95.00  -80.72                   │  │
│  │ 10/27/2014   2  409.8   5.54  -0.18  115.67   95.00  -81.30                   │  │
│  │ 10/28/2014   3  409.6   5.54  -0.18  115.83   95.00  -81.88                   │  │
│  │ 10/29/2014   4  409.5   5.54  -0.18  115.99   95.00  -82.46                   │  │
│  │ 10/30/2014   5  409.3   5.53  -0.18  116.14   95.00  -83.04                   │  │
│  │ 10/31/2014   6  409.1   5.53  -0.18  118.06   95.00  -90.52                   │  │
│  │ 11/01/2014   7  408.9   5.53  -0.18  118.22   95.00  -91.10                   │  │
│  │ **** PHASE CHANGE ***********************************************             │  │
│  │ 11/02/2014   8  408.7   7.86   1.18  118.04   95.00  -90.65                   │  │
│  │ 11/03/2014   9  409.9   7.89   1.18  117.85   95.00  -90.20                   │  │
│  │ 11/04/2014  10  411.1   7.91   1.18  117.67   95.00  -89.74                   │  │
│  │ 11/05/2014  11  412.3   7.93   1.18  117.50   95.00  -89.29                   │  │
│  │ 11/06/2014  12  413.5   7.95   1.18  117.32   95.00  -88.84                   │  │
│  │ 11/07/2014  13  414.6   7.98   1.19  117.14   95.00  -88.38                   │  │
│  │ 11/08/2014  14  415.8   8.00   1.19  116.96   95.00  -87.93                   │  │
│  │ 11/09/2014  15  417.0   8.02   1.19  116.79   95.00  -87.47                   │  │
│  │ 11/10/2014  16  418.2   8.05   1.19  116.61   95.00  -87.02                   │  │
│  │ 11/11/2014  17  419.4   8.07   1.20  116.44   95.00  -86.56                   │  │
│  │ 11/12/2014  18  420.6   8.09   1.20  116.27   95.00  -86.11                   │  │
│  │ 11/13/2014  19  421.8   8.12   1.20  116.09   95.00  -85.65                   │  │
│  │ 11/14/2014  20  423.0   8.14   1.20  115.92   95.00  -85.20                   │  │
│  │ 11/15/2014  21  424.2   8.16   1.20  115.75   95.00  -84.74                   │  │
│  │ **** PHASE CHANGE ***********************************************             │▼ │
│  └────────────────────────────────────────────────────────────────────────────┘  │
│  ┌───────┐ ┌───┐ ┌──────┐ ┌───┐                     ┌──────┐ ┌───────┐ ┌──────────┐│
│  │ Files │ │ ‹ │ │ Go to│ │ › │                     │ Help │ │ Input │ │ Main Menu││
│  └───────┘ └───┘ └──────┘ └───┘                     └──────┘ └───────┘ └──────────┘│
└───────────────────────────────────────────────────────────────────────────────────┘
```

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-------------------------------------------------------------------------
NAVIGATION
-------------------------------------------------------------------------
[Files]        Create, open, or save profit projection files.
               The print option is under Files button.
[<]            Previous screen.
[Goto]         Jump to another output section.
[Dbl Click]    Double click on a row in the list box invokes Goto button.
[>]            Next screen.
[Help]         Display help message.
[Input]        Jump to input screen.
[Main Menu]    Exit and return to main menu.
-------------------------------------------------------------------------
```

The output consists of two screens: Closeout screen and Iterations screen.
To print these screens click on the Files button and then select the
Print option.

The iterations screen shows the result of daily iterations. and the values
in the closeout screen are calculated according to the following equations:

1.  Pay-weight          Purchase weight of animals.
2.  In-weight           Weight of animals on arrival in feedlot.
3.  Finish-weight       Weight of animals on departure from feedlot.
    **FinishWeight      = LiveWeight / 0.96.**

4.  Out-weight          Weight of animals on departure from feedlot with
                        shrinkage.  Equivalent to selling pay weight.
    **OutWeight[HD]     = FinishWeight[HD] * (1 - (ShrinkageOut/100)).**
    **OutWeight[LOT]    = OutWeight[HD] * HeadOut.**

5.  Transit Shrink, %
    **ShrinkIn = 100 * (PayWeight[HD] - InWeight[HD]) / PayWeight[HD].**

6.  Feedlot Death loss, %
    **Death Loss % (1-21 days): Killed at day 14.**
    **Death Loss % (21+  days): Killed at day 60.**
    **DeathLoss = 1 - HeadOut/HeadIn.**

7.  Net Gain, lb
    There are three methods to calculate Net Gain.

    **InWt to FinishWt Method:**
        **NetGain[LOT] = FinishWeight[LOT] - InWeight[LOT].**
    **InWt to PayWt Method:**
        **NetGain[LOT] = OutWeight[LOT] - InWeight[LOT].**
    **PayWt to PayWt Method:**
        **NetGain[LOT] = OutWeight[LOT] - PayWeight[LOT].**

     **NetGain[HD] = NetGain[LOT]/HeadOut.**

8.  Total Head.days & Avg days-on-feed
    RULE:  Count the day of arrival, don't count the day they go out
           (either sale or dead).

    --- Head.Days ---
    **HeadDays[LOT] = Sum (Iter[i].Head), for i = 0 to last iter.**

    --- Av. HeadDays/hd OR Av. days-on-feed: ---
    **HeadDays[HD] = HeadDays[LOT]/HeadOut.**

9.  ADG, lb/day
    **ADG[HD] = NetGain[LOT] / HeadDays[LOT].**

10. Total Feed Consumed (from daily records)  on AS FED basis, lb
    --- Total Feed Consumed per lot, lb: ---
    **TotalFeedConsumedAF[LOT]    = Sum(Iter[i].IntakeAF * Iter[i].Head).**
                                    **for i = 0 to last iter**

```
        --- Total Feed Consumed per head, lb/hd ---
        TotalFeedConsumedAF[HD] = TotalFeedConsumedAF[LOT]/HeadOut.


11. Daily feed consumed on 100% Dry Matter
        --- daily feed consumed, lb/day (lot) ---
        DailyFeedConsumedAF[LOT]    = TotalFeedConsumedAF[LOT] / HeadDays[HD].

        --- daily feed consumed, lb/head.day ---
        DailyFeedConsumedAF[HDDAY]  = TotalFeedConsumedAF[LOT] / HeadDays[LOT].


12. Feed efficiency, lb feed/lb gain
        FeedEfficiency[HD] = TotalFeedConsumedAF[LOT] / NetGain[LOT].


13. Feed Cost, from daily record
        --- Feed costs, $/lot ---
        FeedCost[LOT]     = Sum(Iter[i].DailyFeedCostAF * Iter[i].Head).
                           for i = 0 to last iter.

        --- Feed costs, $/hd ---
        FeedCost[HD] = FeedCost[LOT] / HeadOut.


14. FeedCost per pound of gain, $/lb
        FeedCostPerGain[HD] = FeedCost[LOT]/NetGain[LOT].


15. Medical charge, $/lot  and $/hd
        MedicalCharge[LOT] = HeadIn * ProcMedicalCost.
        MedicalCharge[HD]  = MedicalCharge[LOT]/HeadOut.


16. Other feedlot costs, $(lot) and $/hd
        Sum of ALL feedlot non-feed, non-Medical charges (yardage, inspection
        fees, etc.). It does NOT include the feedlot interest.

        OtherFeedlotCosts[LOT] =
                HeadOut * CommissionSell       +
                HeadOut * BrandInspectionFee   +
                HeadOut * BeefCheckOffFee       +
                HeadDays[LOT] * (MgtYardageFee/100) +
                HeadIn  * OtherFees.

        OtherFeedlotCosts[HD] = OtherFeedlotCosts[LOT] / HeadOut.


17. Total feedlot charges with interest,$(lot) and $/hd
        Sum of feed, Medical, other feedlot costs, and Feedlot Interest.

        TotalFeedlotCharges[LOT] = FeedCost[LOT]+
                                   MedicalCharge[LOT] +
                                   OtherFeedlotCosts[LOT] +
                                   FeedlotInterest[LOT].

        TotalFeedlotCharges[HD]  = TotalFeedlotCharges[LOT]/HeadOut.


18. Feedlot Cost of Gain, only $/hd
        FeedlotCostOfGain[HD] = TotalFeedlotCharges[LOT] / NetGain[LOT].


19. Total Sale, $ /lot and $/head
        TotalSale[LOT] = OutWeight[LOT] * SellingPrice/100.
        TotalSale[HD]  = TotalSale[LOT]/HeadOut.


20. Avg sale price, $/cwt
        AvgSalePrice[LOT] = SellingPrice.


21. Cattle cost, $ (at auction, etc)
        PurchaseCost[HD]   = (PurchasePrice/100) * PurchasePayWeight[HD]
        PurchaseCost[LOT]  = (PurchasePrice/100) * PurchasePayWeight[LOT]
```

22  Interest on cattle, $
      Note that Headout is used for calculating per head value.

      **CattleLoan[LOT]      = HeadIn * PurchasePayWeight * (PurchasePrice/100) +**
      **                        HeadIn * CommissionBuy     +**
      **                        HeadIn * Transit           +**
      **                        HeadIn * OriginInspectFee   +**
      **                        HeadIn * PastureMovementFee  -**
      **                        HeadIn * MarginEquity;**
    **CattleInterest[LOT] = Days * CattleLoan[LOT] * InterestRate/36500;**

     **CattleLoan[HD]      = CattleLoan[LOT]/HeadOut;**
     **CattleInterest[HD]  = CattleInterest[LOT]/HeadOut;**

23. Interest on feedlot, $

      Feedlot loan is initialize to medical and other up front from
      the very first day. Then we iterate for feed cost and yardage
      Note that HeadOut is used for calculating per head value.

      FeedlotLoan[LOT]      = HeadIn * ProcMedicalCost +
                                HeadIn * OtherFees;
      FeedlotLoan[LOT]      = Sum(Iter[i].Head * MgtYardageFee +
                                    Iter[i].Head * Iter[i].DailyFeedCostAF)
                              for i = 1 to last iter.
      FeedlotInterest[LOT] = Sum(FeedlotLoan[LOT] *InterestRate/36500)
                              for i = 1 to last iter.
      FeedlotLoan[HD]       = FeedlotLoan[LOT]/HeadOut;
      FeedlotInterest[HD]  = FeedlotInterest[LOT] / HeadOut;

24. Interest (cattle+feedlot)
      **Sum of cattle interest and feedlot interest.**

25. Laid-in costs, $(lot) and $/head
      Sum of original cost of cattle, freight, order-buyer charges,
      at-origin inspection, and all charges PRIOR to arrival

      **LaidinCosts[LOT] =  PurchaseCost[LOT]          +**
      **                    HeadIn  * CommissionBuy     +**
      **                    HeadIn  * Transit           +**
      **                    HeadIn  * OriginInspectFee   +**
      **                    HeadIn  * PastureMovementFee.**

     **LaidinCosts[HD]   =  LaidinCosts[LOT] / HeadOut.**

26. Total Costs (with all interests), $(lot) and $/head
      **Sum of Laidin cost + All feedlot cost + CattleInterest**
      **TotalCosts[LOT] =  LaidinCosts[LOT] +**
      **                   TotalFeedlotCharges[LOT]+**
      **                   CattleInterest[LOT].**
     **TotalCosts[HD]    =  TotalCosts[LOT] / HeadOut.**

27. Profit/Loss, $ (lot) and $/head
      **ProfitLoss[LOT] = TotalSale[LOT] - TotalCosts[LOT].**
      **ProfitLoss[HD]  = ProfitLoss[LOT] / HeadOut.**

28. Breakeven Sell, $/cwt  put in the HD column
      **BreakevenSell[HD] = 100 * TotalCosts[LOT] / OutWeight[LOT].**

29. Breakeven Buy, $/cwt  put in the HD column
      **BreakevenBuy[HD] = 100 ***
      **        (TotalSale[LOT] -**
      **        (TotalCosts[LOT] - PurchaseCost[LOT] - CattleInterest[LOT]) ) /**
      **        PayWeight[LOT].**

NOTES:

The iteration shows the change in feeding phases as specified in the PHASE INFORMATION SCREEN.  It also provides you with useful information (i.e. break-even point, etc) which will help you make important decisions that are critical to the success to your operation.

When running the program, it is recommended to project profits with at least three different scenarios, for example: one keeping the SELLING PRICE equal to previous year, one assuming that it goes up, and one assuming that it goes down. This will provide you with a pessimist and an optimist scenario.

If the results of the calculations do not seem accurate in the iteration or in the close-out report, check the data that you entered in the input screens, it could be that you are missing values, or provided inaccurate information.  If that is the case, make the corrections and run the projection one more time.

The program allows you to modify the company logo, implant effect, and the format of the closeout report by modifying three configuration files:  COMPANY.CFG, PPIMPLAN.CFG, ands PPCLSOUT.CFG. For more information see Configuration and Customization section of this manual.