



CREATIVE FORMULATION CONCEPTS, LLC

FORMULATION & MANAGEMENT SOFTWARE

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## Guide for Getting Started with the CONCEPT5 Formulation System

This guide describes how to use the very minimal basic features of the Concept5 formulation system required for the creation of your first formula. For a more detailed explanation of each function, please refer to the on-screen Help file within Concept5. The Help file can be accessed from the menu bar on the main menu, or by clicking the Help button found on almost every screen.

When you install Concept5, either as a Trial or Licensed version, you have the option to begin with a “blank” database, or with preloaded demonstration data. If you install the system with a blank database, you **MUST** follow the instructions in this guide, in the order that they are presented, before you can create your first formula. If you install the system with demonstration data (or your own data converted by CFC from another formulation system to Concept5), it is still recommended that you follow the instructions in this guide in order to become familiar with the Concept5 data structure and content.

Although the Concept5 system contains several hundred features and functions, this guide will discuss only the following eight minimal functions:

System Options

Nutrient Definitions

Ingredient Names and Nutrient Composition

Manufacturing Location Descriptions (Plants)

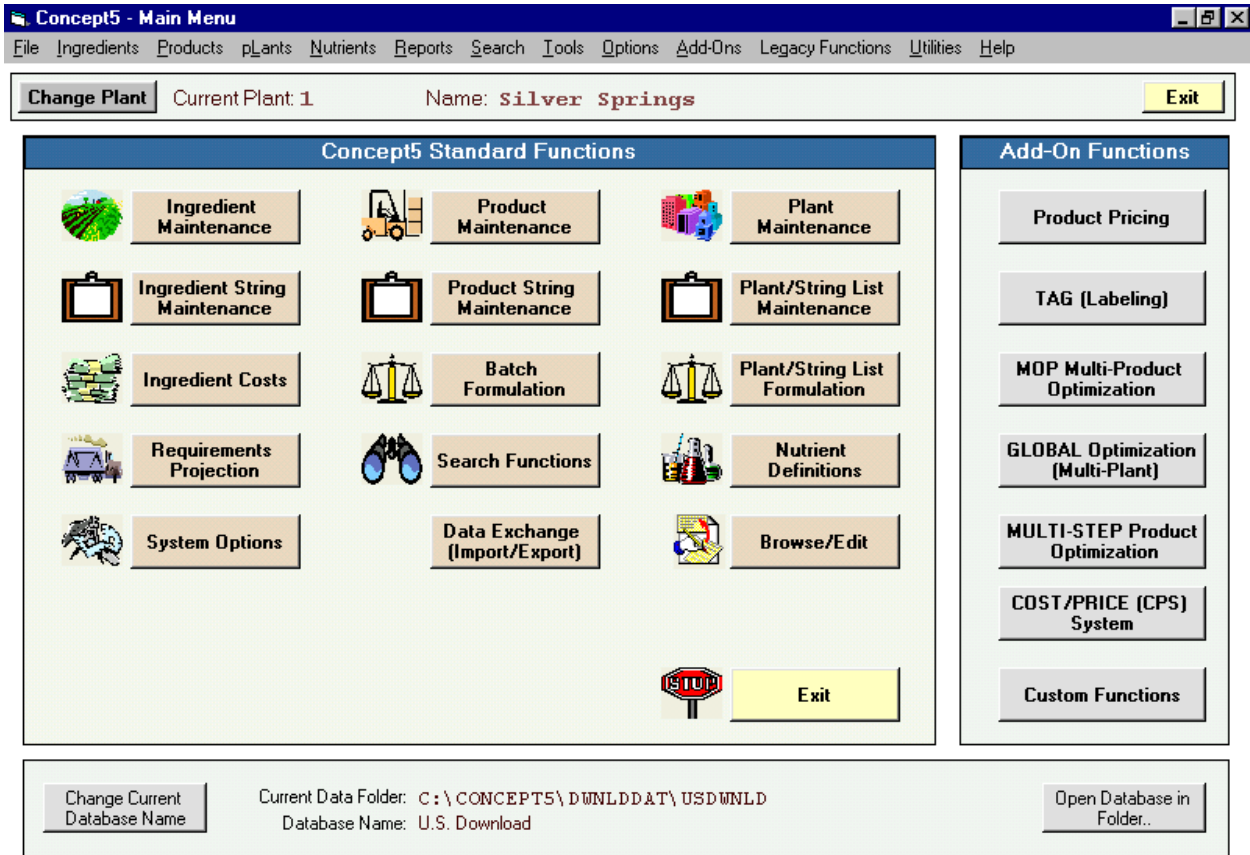
Ingredient Costs at Manufacturing Locations (Plants)

Manufactured Product Definitions

Trial/Production Formula View/Modify

Least Cost Formulation

## Concept5 Main Menu:



Like most, if not all, Windows applications, the Concept5 Main Menu contains a “drop-down” menu line at the top of the screen which may be used to gain access to any and all of the system functions.

In addition to the Menu line, the most commonly used functions may be accessed by clicking the mouse on the large command buttons appearing in the Standard System Functions frame. If you prefer to access all system functions from the menu line, or if you find the large command buttons and icons distracting, a System Option allows you to disable and hide all of the command button shortcuts.

## System Options (Setting your personal preferences):

Although many things are constant for any installation of Concept5, such as the actual mathematical algorithm required for least cost formulation, some things are either optional, or require clarification due to your particular database content or your personal preference. All of the optional or modifiable system controls are set and maintained by clicking on the “System Options” command button located on the Main Menu.

Selection of this function will result in the multi-tabbed form shown below.

The screenshot shows the 'System Options' dialog box with the following details:

- Title Bar:** System Options
- Current Data Folder:** C:\CONCEPT5\DEMODOATA
- Database Name:** Concept5 Demonstration Data - U.S. Meas
- Help Button:** Located in the top right corner.
- Navigation Tabs:** Product Notes Options, Compare to AAFCO Set-Up, Main Menu Options, User Defined Fields, Index Options, **General/Default Units** (selected), Formulation Controls, Key Nutrient Numbers.
- U.S. or Metric:**  U.S.,  Metric
- Ingredient Cost Units:**  \$/Pound,  \$/100 Lb,  \$/Ton
- Ingredient Min/Max:**  Percent,  Pounds
- Automatic Formula Export Option:**
  - Append to FBU File each time Formulas are Stored to Production ?  Yes,  No
  - FBU File Format:**  Concept5 FBU File,  Legacy VLCFX FBU File,  Legacy LCF/VLCF FBU File
  - FBU File Name:** userid.FB5, userid.FBU, ##userid
  - Include Nutrients in FBU File ?  Yes,  No
- Allow Data Import:** Allow ASCII Data Import into this Database by Data.Exchange ?  Yes,  No

Buttons at the bottom: **OK/Save** and **Cancel**.

Although there are many different “tabs” containing options which you may modify, only the “U.S. or Metric”, “Ingredient Cost Units”, and “Ingredient Min/Max” frames on the General/Default Units tab shown above, and the selection of the “Default Cost Set” on the Formulation Controls tab are important to this getting started tutorial. More detailed information on all system options may be obtained from the on-line Help system.

### **U.S. or Metric Option:**

This option informs Concept5 whether to use U.S. or Metric terminology and data units. It is recommended that this option be set only one time, that being prior to loading any data into the Concept5 database. Toggling this option from one setting to another will **NOT** perform any conversion of the data in the database. It will merely change the terminology used in communicating on the screens and printed reports.

### **Ingredient Cost Units Option:**

If the system measurement option is U.S., these three options will read \$/Pound, \$/100 Lb, and \$/Ton. If Metric measurement is in effect, they will read \$/Kilogram, \$/100 Kg, and \$/Tonne. The option selected will not change the method of calculations in the system. It is merely for your preference in entering and reviewing current ingredient costs.

### **Ingredient Min/Max Option:**

The Candidate Ingredients section of the Least Cost Specifications contains a list of all ingredients which “may” be used in the formula, and an optional minimum and/or maximum amount required or allowed. The setting of this system option tells the Concept5 system whether these minimum and maximum ingredient amounts are expressed as a percent of formula total, or as Pounds (or Kilograms if Metric) per Batch.

## System Options – Formulation Controls Tab:

The screenshot shows the 'System Options' dialog box with the 'Formulation Controls' tab selected. The dialog has a title bar 'System Options' and a 'Help' button. It displays the current data folder and database name. The 'Formulation Controls' tab is active, showing several sections of options:

- Default Cost Set:** Radio buttons for 'Owning Costs' (selected) and 'Market Costs'.
- Adjust Rounded Formula to Batch Size:** Radio buttons for 'Yes' and 'No' (selected).
- Batch Formulation Run Options:** Three rows of options, each with radio buttons for 'Yes', 'No', and 'Prompt When Run' (selected).
  - Validate Production Formulas ?
  - Resolve Ingredient Production Minimums ?
  - Limit Ingredients on Maximum Change Amounts ?
- Full Screen Formulation Options:** One row of options with radio buttons for 'Yes', 'No', and 'Prompt When Run' (selected).
  - Resolve Ingredient Production Minimums ?
- Multiple Product Optimization (MOP) Options:** Two rows of options with radio buttons for 'Yes', 'No', and 'Prompt When Run' (selected).
  - Resolve Ingredient Production Minimums ?
  - Limit Ingredients on Maximum Change Amounts ?

At the bottom of the dialog are 'OK/Save' and 'Cancel' buttons.

### Default Cost Set:

For each Ingredient, at each manufacturing location (Plant), Concept5 allows you to enter two costs. For identification purposes, these two costs are referred to throughout the system as the “Owning” cost and the “Market” cost. You may choose to use both or only one of these cost sets, and you indicate which of these is the “default” by your selection in the “Default Cost Set” frame of the “Formulation Controls” tab.

## Nutrient Definitions:

The Concept5 Formulation System allows the definition of up to 1000 Nutrients. The Nutrients are numbered from 1 to 1000, and there are no pre-defined requirements for nutrient numbering.

If you are beginning with a blank database, it is important to give careful consideration to how you will number your nutrients. Use the numbers to group “like” nutrients, such as amino acids, minerals, etc., and leave gaps between numbers so that additional nutrients may be inserted into like groups as needed.

Once all nutrients have been defined, and ingredients and products added to the system, there is no easy way “change your mind” on the nutrient numbering scheme.

Nutrient Definitions are set and maintained by clicking on the “Nutrient Definitions” command button located on the Main Menu. Selection of this function will result in the form shown below.

Nutrient Maintenance																			Help	
																	Print	Exit		
Class Assignments																				
Nutr No.	Nutrient Name	Units	Shadow Incr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Computed	DO NOT Adjust On Moisture Chg
2	ME; POULTRY	Kcal/Lb	10.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	ME; SWINE	Kcal/Lb	10.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	DE DAIRY	Mcal/Kg	0.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Computed	<input type="checkbox"/>
5	ME; RUMIN	Kcal/Lb	10.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	ME DAIRY	Mcal/Kg	0.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Computed	<input type="checkbox"/>
7	NEL DAIRY	Mcal/Kg	0.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Computed	<input type="checkbox"/>
8	NEM DAIRY	Mcal/Kg	0.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Computed	<input type="checkbox"/>
9	NEG DAIRY	Mcal/Kg	0.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Computed	<input type="checkbox"/>
10	TDN; SWINE	PCT	1.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	TDN	PCT	1.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Protein, Crude	PCT	1.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	PROTEIN; DIGEST	PCT	0.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	NPN; PROT EQ.	PCT	0.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	FAT; CRUDE	PCT	0.10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	FAT; ADDED	PCT	0.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	FIBER; CRUDE	PCT	0.10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	ASH	PCT	0.10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	MOISTURE	PCT	0.50	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	CALCIUM	PCT	0.01	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	PHOSPHORUS; TOT	PCT	0.01	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	PHOSPHORUS; AV	PCT	0.01	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	SALT	PCT	0.01	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	SODIUM	PCT	0.01	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

There are 1000 nutrient “rows” available for use, representing nutrients numbered from 1 through 1000. Nutrients are added and/or edited by clicking in the appropriate box and typing in the desired text or numbers. Each Nutrient Name may contain up to 20 characters, and each Unit of Measure may contain up to 8 characters. Each of these entries is descriptive only, and may contain any characters of your choice.

The Shadow Incr. and Class Assignment columns are beyond the scope or intent of this guide. See the on-line Help system for further information.

If the column labeled Computed contains the word, Computed, the value of that nutrient in all ingredients is created by the calculation of a global nutrient equation.

The column titled DO NOT Adjust on Moisture Chg allows you to designate which nutrient values will not be adjusted when the moisture/dry matter values of the base ingredients are changed.

Nutrient definitions cannot be deleted once created. They can, however, be renamed. A word of caution - if a nutrient is renamed (or if the name is removed) the original nutrient values and product restrictions for this nutrient number will remain on each ingredient and product to which it was previously applied. If the name is removed, the notation **[\*\*No Name\*\*]** will appear in all ingredients and products that contain a non-zero value for that nutrient number. It is strongly suggested that before a nutrient number is re-used, that the time be taken to review each ingredient and product, and change or remove the original values on this row.

## Ingredient Names and Nutrient Composition:

In the Concept5 Formulation System, “Ingredients” are the physical “raw materials” which are combined in the manufacturing of feed or food “Products”. The system allows the definition of an unlimited number of Ingredients.

Ingredients are added and maintained by clicking on the “Ingredient Maintenance” command button located on the Main Menu. Selection of this function will result in the form shown below.

**Base Ingredient Maintenance**

Ingredient: **1** Name: **Corn, Ground** Help

Get Code:

**General** Tag (Labeling) Controls

**Description**

Full Name: **Corn, Ground**

Short Name (16 Char Max):

Moisture: **13.0000** Pct

Alternate Code: **ING284**

Round Amount: **1.00** Pounds

Production Minimum:  Pounds

(Legacy) PI-Code:

**Mix Report Parameters:**

Bin:  Sequence:

Scale:  Other:

**Equivalent Formula**

Is Ingredient Also a Formula?  Yes  No

**Nutrients** Types Costs Stock Status

Nutr	Nutrient Name	Units	Value	
2	ME; POULTRY	Kcal/Lb	1,561.0000	
3	ME; SWINE	Kcal/Lb	1,402.1000	
4	DE DAIRY	Mcal/Kg	3.4203	Cg
5	ME; RUMIN	Kcal/Lb		
6	ME DAIRY	Mcal/Kg	3.0045	Cg
7	NEL DAIRY	Mcal/Kg	1.7801	Cg
8	NEM DAIRY	Mcal/Kg	2.0352	Cg
9	NEG DAIRY	Mcal/Kg	1.3765	Cg
10	TDN; SWINE	PCT	79.5455	
11	TDN	PCT	77.5568	
12	Protein, Crude	PCT	8.0000	
13	PROTEIN; DIGEST	PCT	6.7116	
14	NPN; PROT EQ.	PCT		
15	FAT; CRUDE	PCT	3.8778	
16	FAT; ADDED	PCT		
17	FIBER; CRUDE	PCT	2.7841	
18	ASH	PCT	1.2926	
19	MOISTURE	PCT	13.0000	
20	CALCIUM	PCT	0.0199	
21	PHOSPHORUS; TOT	PCT	0.2884	

Last Change: **08/14/07 09:35:20** By: **ADMIN**

Use this form to add or change ingredient names, nutrient values, types, costs, out-of-stock indicator, alternate code, round amount, production minimum, Legacy code, mix report parameters. (For more detailed information, see the Help file Contents tab - Ingredients, Editing Ingredients.)

The “Save-As” function may be used to add a new ingredient which closely resembles an existing ingredient, and a copy and editing process will save time and reduce errors. [See the Help file Contents tab - Ingredients, Adding Ingredients (Copy an Existing Ingredient).]



The “Add New Ingr” function is used to add a new ingredient which bears no similarity to an existing ingredient, or when the user desires a blank ingredient template. [See the Help file Contents tab - Ingredients, Adding Ingredients (Blank Form).]

The “Delete Ingr” function is used to delete an existing ingredient from the system. Deleting ingredients must be done carefully and with some forethought to avoid the challenges that can develop from deleting ingredients from active or stored formulas.

**Caution is advised throughout this procedure. The system cannot undo an ingredient deletion.** It is recommended that an ingredient search be completed before any ingredient is deleted. (See the Help file Contents tab - Ingredients, Deleting Ingredients.)

## Manufacturing Location Descriptions (Plants)

Before adding any ingredient costs, Products, or Formulas to the Concept5 system, at least one Manufacturing Location (Plant) must be defined. This is done by clicking on the “Plant Maintenance” command button located on the Main Menu. Selection of this function will result in the form shown below.

Plant Maintenance							
Plant:	<b>1</b>	Name:	<b>Silver Springs Feed Plant</b>			<a href="#">Help</a>	
<a href="#">Get Plant...</a>	<a href="#">First</a>	<a href="#">Prev</a>	<a href="#">Next</a>	<a href="#">Last</a>	<a href="#">Add New Plant</a>	<a href="#">Edit</a>	<a href="#">eXit</a>
Description							
Plant Name:	<b>Silver Springs Feed Plant</b>						
Accounting Plant Code:	<b>SS</b>	Default Mix Batch Size:	<b>2,000.00</b>				
Alternate Plant Costs				Use Owning, Market, or Default Costs			
Use Ingredient Costs from Another Plant? <input type="radio"/> Yes <input checked="" type="radio"/> No				System Default Cost is: <b>Owning</b>			
				Use System Default, Owning, or Market Costs at this Plant:			
				<input checked="" type="radio"/> Use Default <input type="radio"/> Use Owning <input type="radio"/> Use Market			
Cost/Price (CPS) Controls				Tag Controls			
Cost/Price Items in This Plant? <input type="radio"/> Yes <input checked="" type="radio"/> No				Plant ID Tag Message Code: <b>PL1</b>			
				<b>Automatic Formula Export Override</b>			
				Override System Default FBU Settings: <input type="radio"/> Yes <input checked="" type="radio"/> No			
Last Change: <b>12/13/05 07:47:40</b> By: <b>ADMIN</b>							

For the purpose of this “getting started” guide, the only information of importance on the above form is the Plant Code “1” in this example. Even the Plant name is optional, but certainly recommended for ease of identification when multiple plants have been defined.

For more detailed information pertaining to the other information on the Plant Maintenance form, refer to the on-line Help.

## Ingredient Costs at Manufacturing Locations (Plants):

You may define two costs for each Ingredient in Concept5 at each manufacturing Plant. These two costs are identified throughout the system as the “Owning” cost and “Market” cost. You may use these two costs any way you see fit.

Although there are several ways to maintain these costs in the system, the most straightforward way, and the only way discussed in this guide, is to select the “Ingredient Cost” command button located on the Main Menu. After selection of this function, you will be asked whether to show all ingredients, or only ingredients with Non-zero costs, and whether or not to show out-of-stock ingredients.

Further selection of the “Show Cost” function will result in the form shown below.

Ingredient Cost Maintenance - Plant: 1 [ Silver Springs Feed Plant ]				
Plant: 1		Silver Springs Feed Plant		Help
Sort on Code	Sort on Name	Copy Costs to Plant...	Print	Edit
Exit				
Ingr Code	Ingredient Name	Owning \$/Ton	Market \$/Ton	Out-of Stock
1	Corn, Ground (Overlay)	110.00	100.00	<input type="checkbox"/>
2	Soy Meal	202.00	210.00	<input type="checkbox"/>
3	Oats	175.00	180.00	<input type="checkbox"/>
4	Corn, Rolled	104.00	100.00	<input type="checkbox"/>
5	Wheat	115.00	115.00	<input type="checkbox"/>
6	Calcium Carbonate	20.00	21.00	<input type="checkbox"/>
7	Urea	172.00	172.00	<input type="checkbox"/>
8	Beet Pulp	129.00	131.00	<input type="checkbox"/>
9	C/S Meal	140.00	150.00	<input type="checkbox"/>
10	Mono Amon Phos	400.00	400.00	<input type="checkbox"/>
11	Alfalfa Pellet	110.00	110.00	<input checked="" type="checkbox"/>
12	PROBIOS	530.00	600.00	<input type="checkbox"/>
13	EQUIVALENT TEST	172.84	176.60	<input type="checkbox"/>
14	VIT/MIN FX PAK	3,335.00	3,335.00	<input type="checkbox"/>
15	MOLASSES, CANE	91.00	93.00	<input type="checkbox"/>
16	C/S WHOLE	135.60	135.60	<input type="checkbox"/>
17	C/S HULLS	75.40	75.40	<input type="checkbox"/>
18	ORGANODINE	15,600.00	15,600.00	<input type="checkbox"/>
19	SOYBEAN HULLS	75.00	80.00	<input type="checkbox"/>
20	MONO SOD. PHOS.	510.00	510.00	<input type="checkbox"/>
21	MIN AID	80.00	80.00	<input type="checkbox"/>
22	WHEAT MIDDS	80.00	90.00	<input type="checkbox"/>
23	Soybean Meal	225.00	230.00	<input type="checkbox"/>

The cost units in the Owning and Market cost columns will be either \$/Ton, \$/Lb, or \$/100Lb depending on your selection of the “system option” shown on page 3. The Stock Status column allows you to specify ingredients which are currently Out of Stock, and cannot be used in any Least Cost Reformulation of Product Specifications.

## Manufactured Product Definitions:


“Products” in the Concept5 Formulation System is the term used to define a feed or food made up of a combination of “Ingredients” in proportional amounts as specified in a “Formula”. Since each product in Concept5 is stored within a “Plant”, you should pay careful attention to the “Current Plant” at the top of the Main Menu (if you are working in a Multiple Plant system).

All functions pertaining to Products are accessed from within the Product Maintenance form, by selecting the “Product Maintenance” command button located on the Main Menu. After selection of this function, the following screen will appear:

**Product Maintenance - Plant: 1 ( Silver Springs Feed Plant )**

Product: **1** Name: **Broiler Starter - NRC Requirements** Help

Get Code:

General	Pricing Controls	Types and User-Fields	Labeling Controls	Additional Information
<b>Description</b> Full Name: <b>Broiler Starter - NRC Requirements</b> Short Name (16 Char Max): <input type="text"/> Nutrient Class (1-15): <b>1 -</b> <input type="text"/> Product Status: <input type="radio"/> Active <input checked="" type="radio"/> <b>Inactive</b> Formulation Batch Size: <b>2,000.00</b> Manufactured Batch Size: <b>3,000.00</b> Production Tonnage: <b>300.00</b> Alternate Product Code: <b>BSNRC</b> Mix Report Format: <b>Concept5</b>		<b>Least Cost Formula</b> Allow Least Cost? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="button" value="Full Screen Formulation"/>  Formulate to Optimum Weight ? <input type="radio"/> Yes <input checked="" type="radio"/> No		
<b>Equivalent Ingredient</b> Save Production Formula as an Ingredient ? <input type="radio"/> Yes <input checked="" type="radio"/> No		<b>Overlay with Cost Set</b> Use Substitute Cost Set as Cost Overlays for This Product <input type="radio"/> Yes <input checked="" type="radio"/> No		
<b>Trial Formula</b> Status: <b>Feasible</b> Date: <b>06/28/2007</b> Version: <b>6</b> By: <b>ADMIN</b> <input type="button" value="Trial View/Modify"/>	<b>Production Formula</b> Status: <b>Stored</b> Date: <b>03/14/2006</b> Version: <b>113</b> By: <b>ADMIN</b> <input type="button" value="Prod'n View / Modify"/>			

Last Change: **03/07/07 13:59:04** By: **ADMIN**

Although this form has several Tabs, and a lot of detailed information, only a few of these are important for the purpose of this getting started guide and will be discussed below. Detailed information pertaining to all of the other data is available in the Help system.

### Product Name:

Although this is an optional field, it is recommended that each product in the system be given a name for ease of identification. Product names may contain up to 40 characters.

**Formulation Batch Size:**

This is a required field on the Product form, and if no entry is provided will “default” to 2000 pounds if the system units are U.S., or 1000 kilograms if the system units are Metric.

When formulas are viewed on the Trial or Prod’n View/Modify form, the ingredient amounts in the formula will be shown in both Pounds (or Kilograms if Metric) and Percent of batch. The “formulation batch size” determines the formula total in terms of pounds or kilograms.

**Allow Least Cost?**

If you do not use Least Cost Formulation, and merely maintain the current formula for this product by manually changing the amount of each ingredient in the formula, select “No” to this question and proceed to the discussion of Trial/Production Formula View/Modify.

You will note that if the response to this question is “No”, you will no longer see the “Formulation” button, and your only way to view and/or modify your current formula(s) is by means of Trial or Prod’n formula View/Modify.

**Trial View/Modify button:**

See Page 14.

**Prod’n View/Modify button:**

See Page 14.

**Formulation button:**

See Page 15.

## Trial/Production Formula View/Modify:

Selection of either the “Trial View/Modify” or “Prod’n View/Modify” button on the Product Maintenance form will result in the following screen, with only slight differences. The form shown was displayed by selecting the “Trial” button, so in the brown banner on the left side of the screen is “Trial Formula”, and a command button “Store to Prod’n” appears. If the form is displayed by selecting the “Prod’n” button, the words “Production Formula” would appear in the banner, and the command button “Store to Prod’n” would not be shown.

**Formula View/Modify - Plant: 1 ( Silver Springs Feed Plant )**

Product: **2** Name: **Broiler Grower - NRC Requirements** **Help**

Sort on Amount    Store to Prod'n    Compute Sell Price    Make Ingr    Print    Mix Report    Notes    **Edit**    eXit

**Trial Formula**

Batch Size: **2,000.00**    Formula Total: **2,000.00**  
 Owning Cost: **155.96** (\$/Ton)

Ingr Code	Ingredient Name	Formula Amount	Percent
6	Calcium Carbonate	43.48	2.174
23	Soybean Meal	478.92	23.946
27	SOYBEAN 48.5%		
32	CORN GLUTEN 60	92.68	4.634
49	BAKERY BY-PROD	122.95	6.147
80	MEAT & BONE MEAL		
81	TALLOW	15.46	0.773
88	POULTRY BY-PRODU		
131	CHOL CHLORID-70		
135	LYSINE L		
224	MEAT & BONE MEAL		
230	DL METH		
250	DICALCIUM PHOSPH		
284	Ground Corn	1,243.52	62.176
299	MINERAL PREMIX	2.00	0.100
300	VITAMIN PREMIX	1.00	0.050

**Nutrient Composition - As Mixed**

**Dry Matter Base**

As Mixed  
 At Dry Matter Base

Nutr	Name	Units	Amount
2	ME; POULTRY	Kcal/Lb	1,450.000
12	Protein, Crude	PCT	20.479
26	ARGININE	PCT	1.344
27	LYSINE	PCT	1.043
28	METHIONINE	PCT	0.411
29	METH + CYSTINE	PCT	0.754
30	TRYPTOPHAN	PCT	0.887
31	GLYCINE	PCT	0.866
32	HISTIDINE	PCT	0.513
33	LEUCINE	PCT	1.453
34	ISOLEUCINE	PCT	0.974
35	PHENYLALANIN	PCT	1.134
36	PHENYL+TYRO	PCT	1.844
37	THREONINE	PCT	0.825
38	VALINE	PCT	1.094

The current formula (Trial or Production) will appear in the grid on the left, and the nutrient composition of the formula will appear in the grid on the right. If there is no formula for the product, the grid on the left will be blank, and the Amount column in the Nutrient grid on the right will contain 0.0 for each nutrient.

Formulas are added or modified by clicking the “Edit” button on the form. Each time an ingredient is added to the formula, or the formula amount of an ingredient is changed, you will see an instantaneous updating of the formula “totals” box at the bottom left, and the Nutrient Composition grid at the right.

## Least Cost Formulation:

Selection of the “Formulation” button on the Product Maintenance form will result in the following “Buffered Least Cost Formulation” screen.

**CFC5 Buffered Least Cost Formulation - Plant: 1 ( Silver Springs Feed Plant )**

Product: **1 Name: Broiler Starter - NRC Requirements** Status: **Feasible** [Help](#)

[Copy to Clipboard](#) [Compute Sell Price](#) **Formulate** [Save](#) [SaveAs](#) [Print](#) [Notes](#) [Edit](#) [Exit](#)

Use Costs: **Owning** **Use Overlay Cost Set ?**  No  Yes

Batch Size: **2,000.00**

**Prod'n Formula Status:** Stored  
Version: 113 03/14/2006  
Trial: Feasible 10/11/06  
Created By: Single Product Least Cost

**Formula Owning Cost (\$/Ton)** **Change:**  
Current: **185.06**  
Previous: **185.68** **-.61**  
Prod'n: **185.68** **-.61**

**Ingredients** Nutrients Nutrient Ratios Ingredient Ratios Ingr Type Controls Matrix

Order Ingredients By:  Code  Amount Ingredient Units:  Percent  Lbs [Costs](#) [Prev](#) [Stored](#) [P-Min](#)

IngrCode	Ingredient Name	OS	Sup	Formula Pct	Min Pct	Max Pct	Max Chg Pct	Rest Cost	\$/Ton	Low Range	High Range
284	Ground Corn	<input type="checkbox"/>	<input type="checkbox"/>	50.099					125.00	91.60	137.00
23	Soybean Meal	<input type="checkbox"/>	<input type="checkbox"/>	36.864					225.00	219.60	238.60
81	TALLOW	<input type="checkbox"/>	<input type="checkbox"/>	6.568					300.00	245.00	441.00
224	MEAT & BONE MEAL	<input type="checkbox"/>	<input type="checkbox"/>	5.000		<b>5.000</b>		-0.06	225.00		231.20
6	Calcium Carbonate	<input type="checkbox"/>	<input type="checkbox"/>	1.183					20.00		83.60
299	MINERAL PREMIX	<input type="checkbox"/>	<input type="checkbox"/>	0.100	<b>0.100</b>	<b>0.100</b>			242.93		
230	DL METH	<input type="checkbox"/>	<input type="checkbox"/>	0.078					2,700.00		6,410.80
229	SALT	<input type="checkbox"/>	<input type="checkbox"/>	0.058					50.00		1,657.40
300	VITAMIN PREMIX	<input type="checkbox"/>	<input type="checkbox"/>	0.050	<b>0.050</b>	<b>0.050</b>			11,875.43		
80	MEAT & BONE MEAL	<input type="checkbox"/>	<input type="checkbox"/>					0.15	240.00	225.00	
131	CHOL CHLORID-70	<input type="checkbox"/>	<input type="checkbox"/>					8.79	800.00		
250	DICALCIUM PHOSPH	<input type="checkbox"/>	<input type="checkbox"/>					2.85	258.58		
177	FISH ML HERRING	<input checked="" type="checkbox"/>	<input type="checkbox"/>			10.000		-0.43	300.00	343.40	
135	LYSINE L	<input type="checkbox"/>	<input type="checkbox"/>					22.21	2,400.00	178.60	
27	SOYBEAN 48.5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>			7.500		-0.02	220.00	221.80	
88	POULTRY BY-PRODU	<input type="checkbox"/>	<input checked="" type="checkbox"/>					0.29	325.00	295.80	

This screen is referred to as “Buffered” because nothing done on this screen will result in permanent changes to your database unless you specifically choose to “Save” your changes. Since virtually EVERY piece of data affecting the calculation of the least cost formula can be modified here and the product reformulated, that makes this screen the “ultimate what-if” tool.

Keep in mind that the primary purpose of this screen is for Least Cost Formulation. If you work with “fixed formulas” which are not allowed to change based on changing ingredient costs and nutrient composition, and stated product “specifications”, then the Trial and/or Production View/Modify screens are much more suitable for use.

For the purpose of this “getting started” document, only the Ingredients and Nutrients tabs of the Buffered Formulation screen will be discussed. See the online Help file for more detailed information on all of the features.



The list of Ingredients on the Ingredient tab (shown on the previous page), and the list of Nutrients on the Nutrient tab (shown on the next page) make up what is commonly referred to in least cost formulation terms as the “product specifications”.

### **Full Screen Formulation – Ingredient Tab:**

The Ingredients included on this grid are those which are **“allowed”** in the formula for this product, along with any minimum amount required, or maximum amount allowed. You are not allowed to enter or change any actual formula “amounts” on this screen. The actual formula amounts are computed by the least cost formulation calculations.

The columns titled “OS” and “Sup” contain check marks for any ingredients which are Out of Stock at the current plant, or Suppressed in the current product. If either of these columns is checked, that ingredient will not be allowed in the formula if you re-formulate this product.

Before making any changes to the information on this screen, you must first click the “Edit” button. You will then be allowed to Add more Ingredients or Remove one or more of the existing ingredients from the product “specifications”, or change any of the minimum and/or maximum amounts.

You may re-formulate (run least cost formulation) at any time by clicking the “Formulate” button. This will initiate a built-in “Linear Programming” algorithm to perform the Least Cost Formulation of the product subject to all of the current specifications. On most newer computers running Windows XP Professional, the time required for re-formulation is near instantaneous, and the screen will be updated with the results of the formulation run.

Any numbers in the minimum and/or maximum columns appearing in bold blue color indicate ingredient amounts in the solution which are “at a limit”. For any “non-fixed” ingredients which are “at a limit”, there will also appear a value in the Rest Cost column. This value is the change in the cost per ton of the formula if the ingredient limit is change by 1 percent.

Above the ingredient grid you will note “check boxes” for changing the ingredient order to either ingredient code order, or descending amount used in the current formula. Also there are check boxes to change the ingredient amounts shown to either Pounds (or kilograms if metric) per Batch or Percent of Batch.

## Full Screen Formulation – Nutrient Tab:

**CFC5 Buffered Least Cost Formulation - Plant: 1 ( Silver Springs Feed Plant )**

Product: **1 Name: Broiler Starter - NRC Requirements** Status: **Feasible** [Help](#)

[Copy to Clipboard](#) [Compute Sell Price](#) [Formulate](#) [Save](#) [SaveAs](#) [Print](#) [Notes](#) [Edit](#) [exit](#)

Nutrient Class: **1 -** [Edit \(Change\) product specifications](#)  
 Base Dry Matter %:

**Prod'n Formula Status:** Stored  
 Version: 113 03/14/2006  
 Trial: Feasible 06/28/2007  
 Created By: Single Product Least Cost

**Formul'n Cost:** **185.27** Change:  
 Current: **185.27**  
 Previous: **185.27**  
 Prod'n: **185.27**

**Nutrients** | Nutrient Ratios | Ingredient Ratios | Ingr Type Controls | Matrix

[Show ALL Nutrients](#) | [Prev](#) | [Prod'n](#) | [AdjDM](#)

Nutr	Nutrient Name	Units	Amount	Minimum	Maximum	Rest Cost	Rest Incr.	Amount	Diff
2	ME; POULTRY	Kcal/Lb	1,455.000	<b>1455.000</b>		1.186	10.00	1,455.00	
12	Protein, Crude	PCT	25.000	<b>25.000</b>		3.280	1.00	25.00	
19	MOISTURE	PCT	9.350					9.35	
20	CALCIUM	PCT	1.000	<b>1.000</b>	1.500	0.026	0.01	1.00	
21	PHOSPHORUS; TOT	PCT	0.506					0.50	
24	SODIUM	PCT	0.200	<b>0.200</b>		0.033	0.01	0.20	
26	ARGININE	PCT	1.872					1.87	
27	LYSINE	PCT	1.556					1.56	
28	METHIONINE	PCT	0.502					0.50	
29	METH + CYSTINE	PCT	0.934					0.93	
30	TRYPTOPHAN	PCT	1.419					1.42	
34	ISOLEUCINE	PCT	1.270					1.27	
37	THREONINE	PCT	1.035					1.04	
38	VALINE	PCT	1.389					1.39	
63	CHOLINE	MG/LB	671.562	590.000				672.14	-0.57

The Nutrients included on this grid along with the minimum and/or maximum amounts make up the nutrient requirements portion of the product specifications. It will be noted that some of the nutrient limits (shown above) in this grid are bold blue in color. This allows a quick visual identification of which nutrients are actually “at a limit” in the current least cost formula.

Accompanied with all nutrients which are “at a limit” will be a Restriction Cost and a Restriction Increment. The Restriction Cost is the change in the formula cost per ton which would result from a change to the nutrient limit by the Restriction Increment amount. The restriction increment for each nutrient is user defined, and is entered in the column titled “Shadow Incr” on the Nutrient Definitions form (see Page 6).