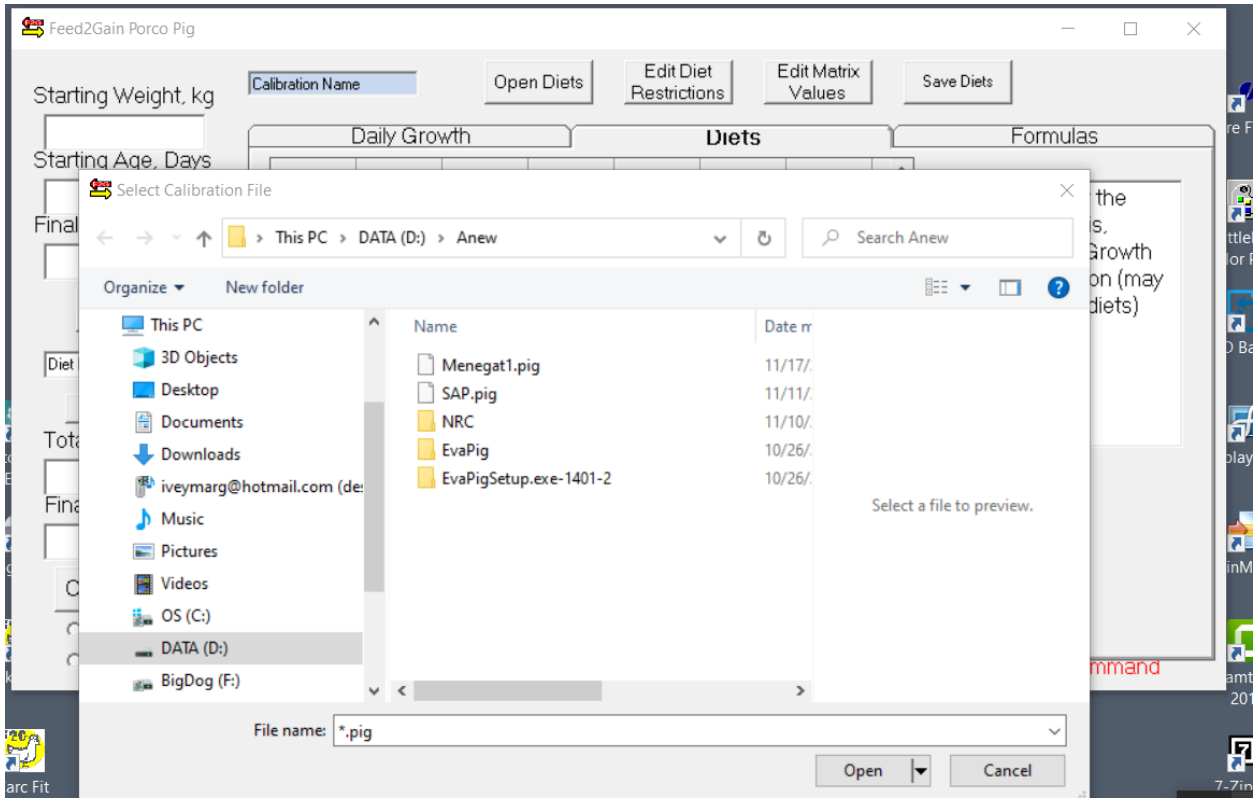
Feed2Gain, LLC has been supplying a Cost minimization Program to the Poultry Industry for over 10 years. This is our first program for swine. The Matrix used is from Brazil, values Metric. Costs are made up, not U. S. based. Growth is from a Research Trial.

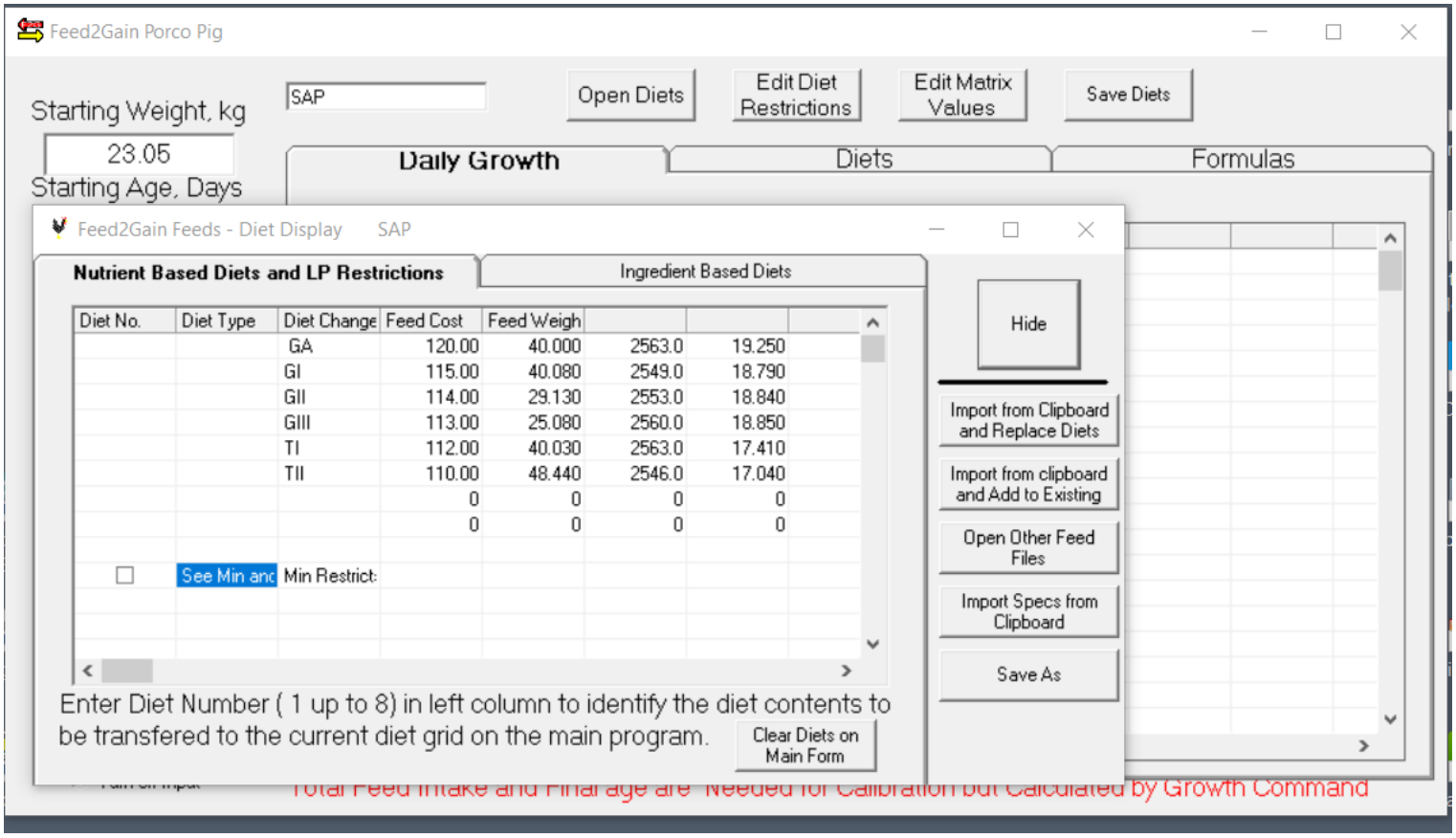
These Slides are what you should see☺

- Click on the Calibration Name to open an existing calibration. They are the .pig files…. Select a .pig file. If the program cannot find it, you will get a warning. This lets you create a new one.
- The live weight we use will be 23 kg or 50.6 lbs to a final weight of 120 kg or 264 lbs.

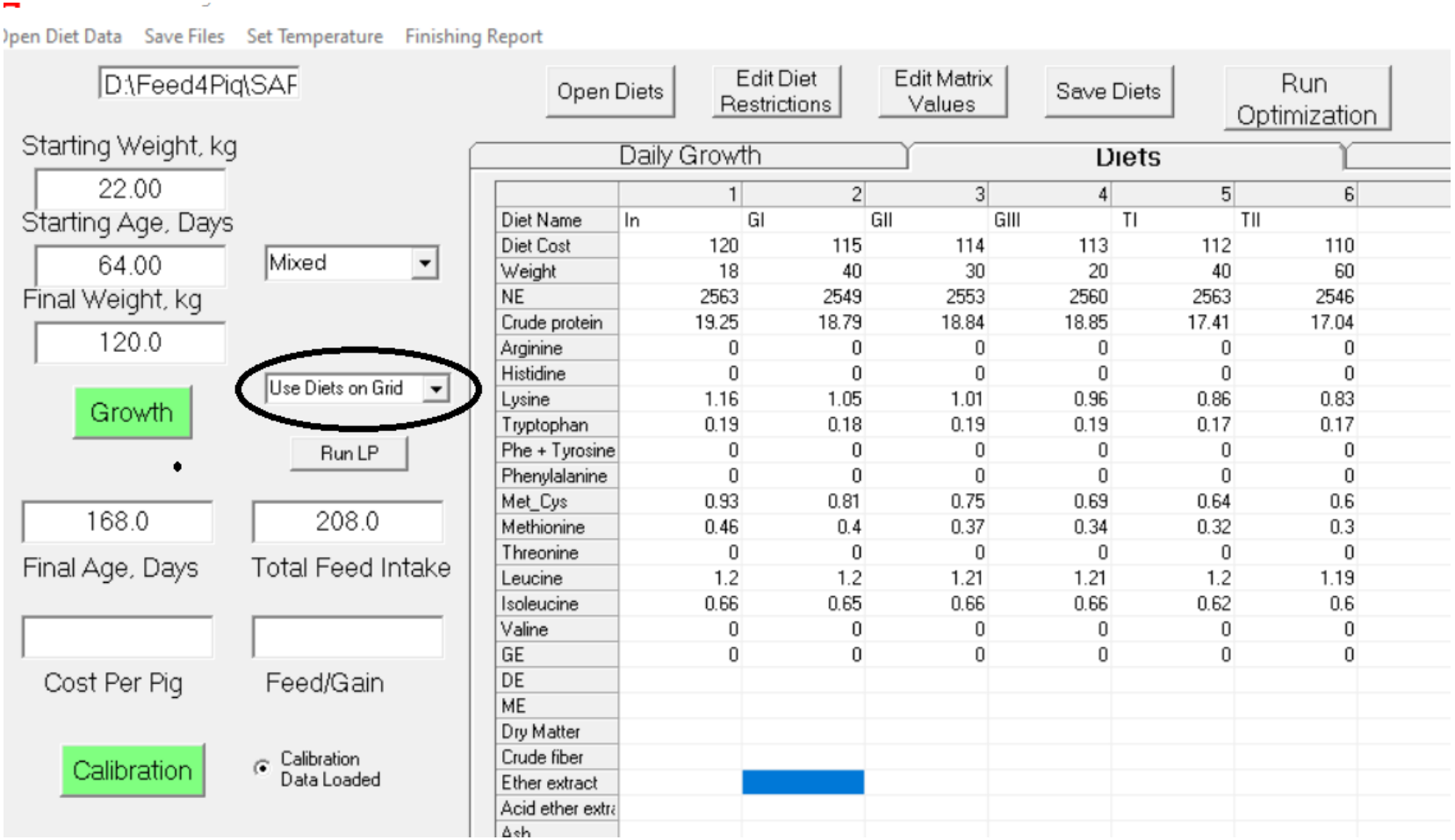


If there is a diet file, it will fill the diets on the main form. If there is no restriction file, you will get a message. This also fixes the program to only use the input diet, no least cost formulation.

- To open Diets, Click on “Open Diets” and then enter the number of the diet in the left column and the diets are transferred to the diet grid. You can make a diet from ingredients on the other tab. Also, can use button to open other existing feeds.



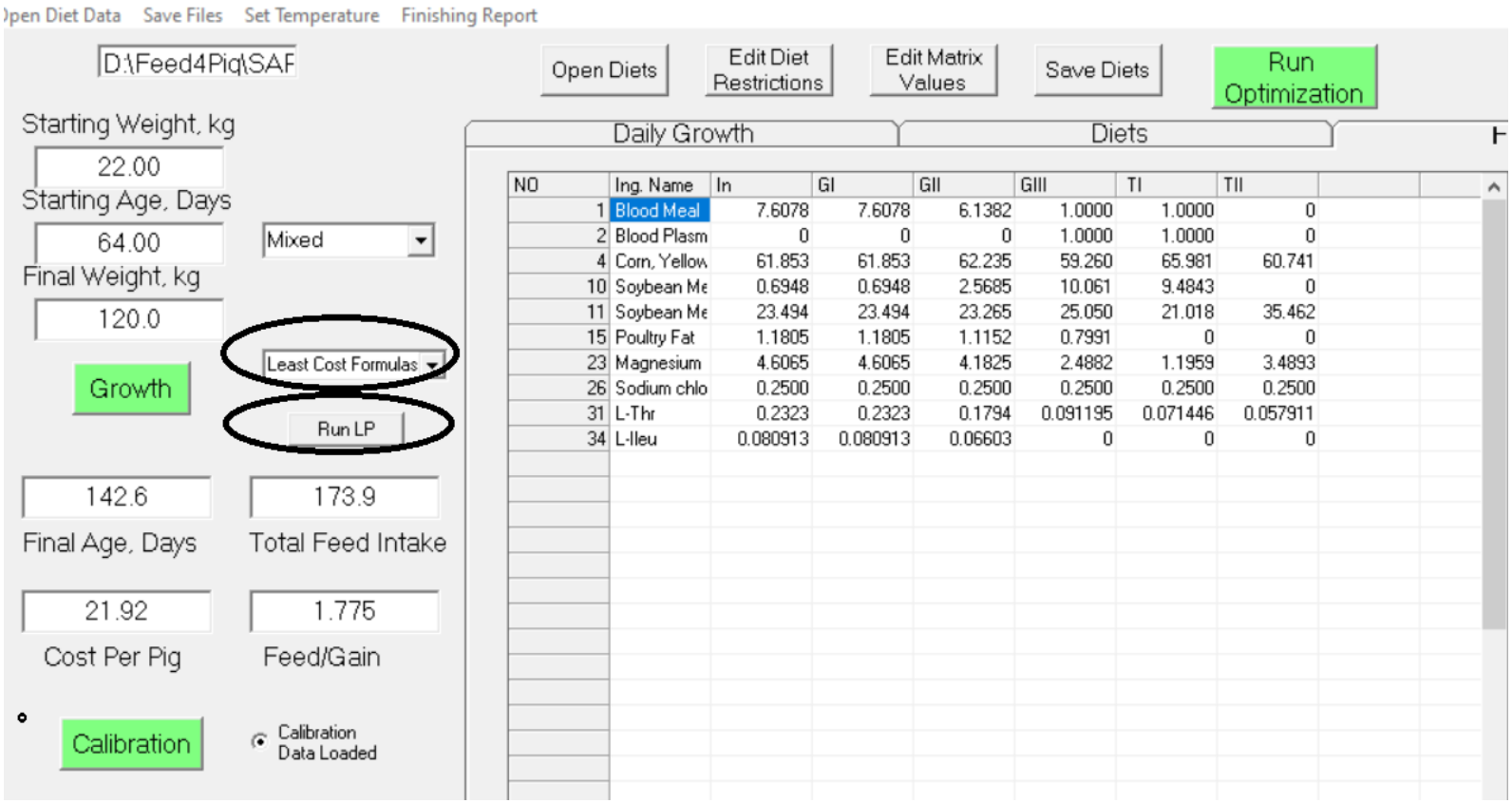
If there is no Matrix or no Restrictions, The button above “Run Least Cost” will show “Use Diets on the Grid”. Any time you want to run growth with just these values, use this setting.
Click on the Growth button and The program will calculate growth, with the nutrients on the grid.



	1	2	3	4	5	6
Diet Name	In	GI	GII	GIII	TI	TII
Diet Cost	120	115	114	113	112	110
Weight	18	40	30	20	40	60
NE	2563	2549	2553	2560	2563	2546
Crude protein	19.25	18.79	18.84	18.85	17.41	17.04
Arginine	0	0	0	0	0	0
Histidine	0	0	0	0	0	0
Lysine	1.16	1.05	1.01	0.96	0.86	0.83
Tryptophan	0.19	0.18	0.19	0.19	0.17	0.17
Phe + Tyrosine	0	0	0	0	0	0
Phenylalanine	0	0	0	0	0	0
Met_Cys	0.93	0.81	0.75	0.69	0.64	0.6
Methionine	0.46	0.4	0.37	0.34	0.32	0.3
Threonine	0	0	0	0	0	0
Leucine	1.2	1.2	1.21	1.21	1.2	1.19
Isoleucine	0.66	0.65	0.66	0.66	0.62	0.6
Valine	0	0	0	0	0	0
GE	0	0	0	0	0	0
DE						
ME						
Dry Matter						
Crude fiber						
Ether extract						
Acid ether extra						
Ash						

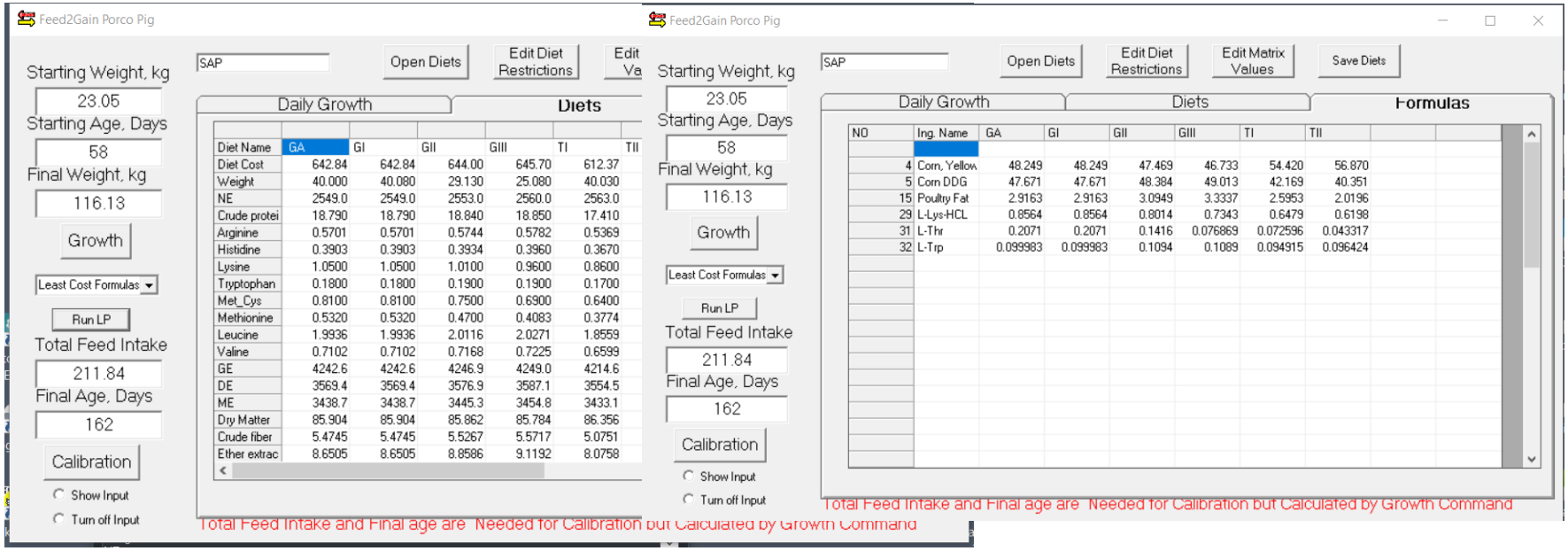
To formulate with an open matrix and restrictions files, change the circled box to “Least Cost Formulas”. When you click on Growth, the least cost feeds are determined and then growth. Here we see the Ingredients in the Least Cost formulas.
The restrictions are the responsibility of the user.

- To run the Least Cost program just to see the results, click the Run LP button.



Clicking just the Run LP will generate the nutrients in the least cost formula on the Diets Tab and the actual formula of ingredients on the Formulas Tab

- You can stretch these windows out to see them more clearly.



You can edit the Restrictions and Matrix with the buttons at the top, save the changes. Then "run lp" to see the changes or just run growth to reformulate and see growth. Same as in BroilerOpt®. Exe.

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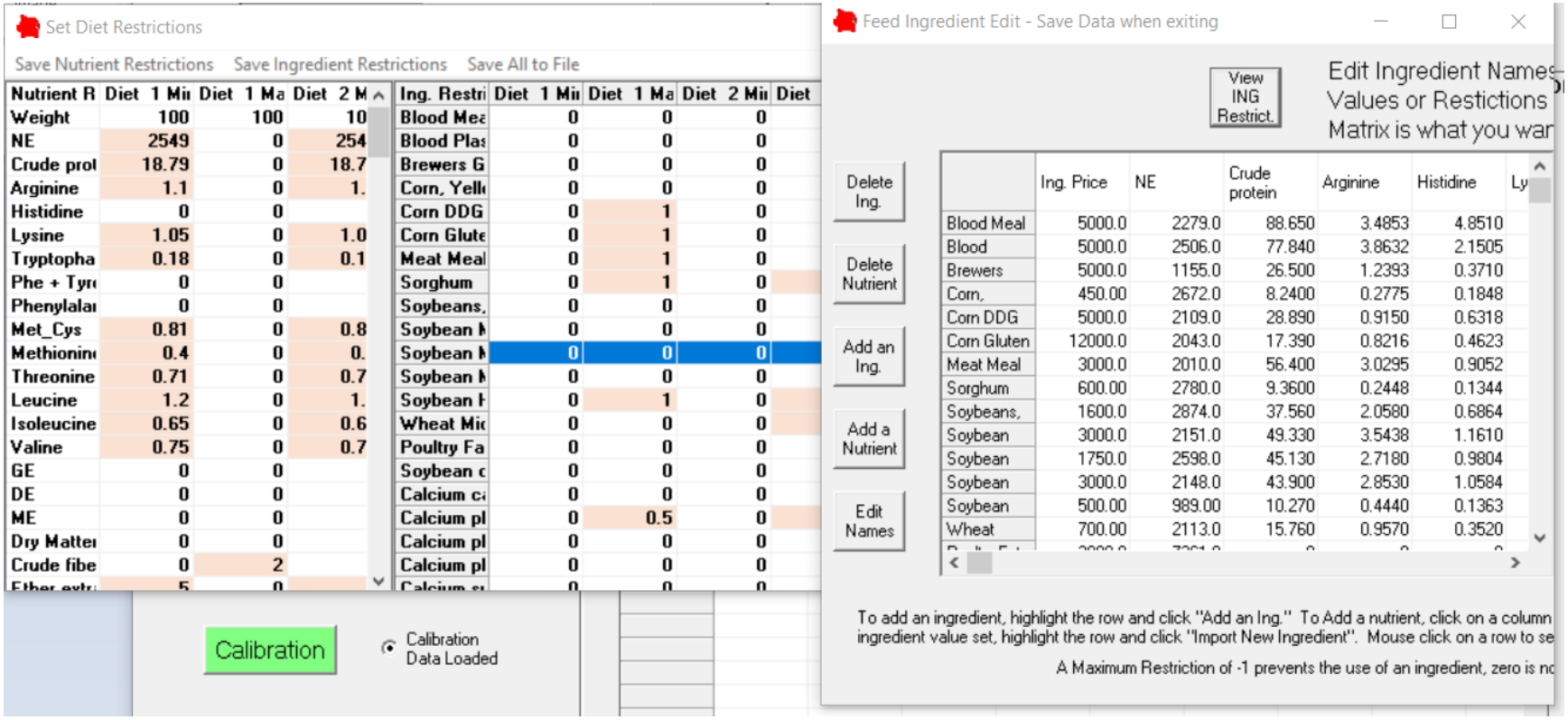
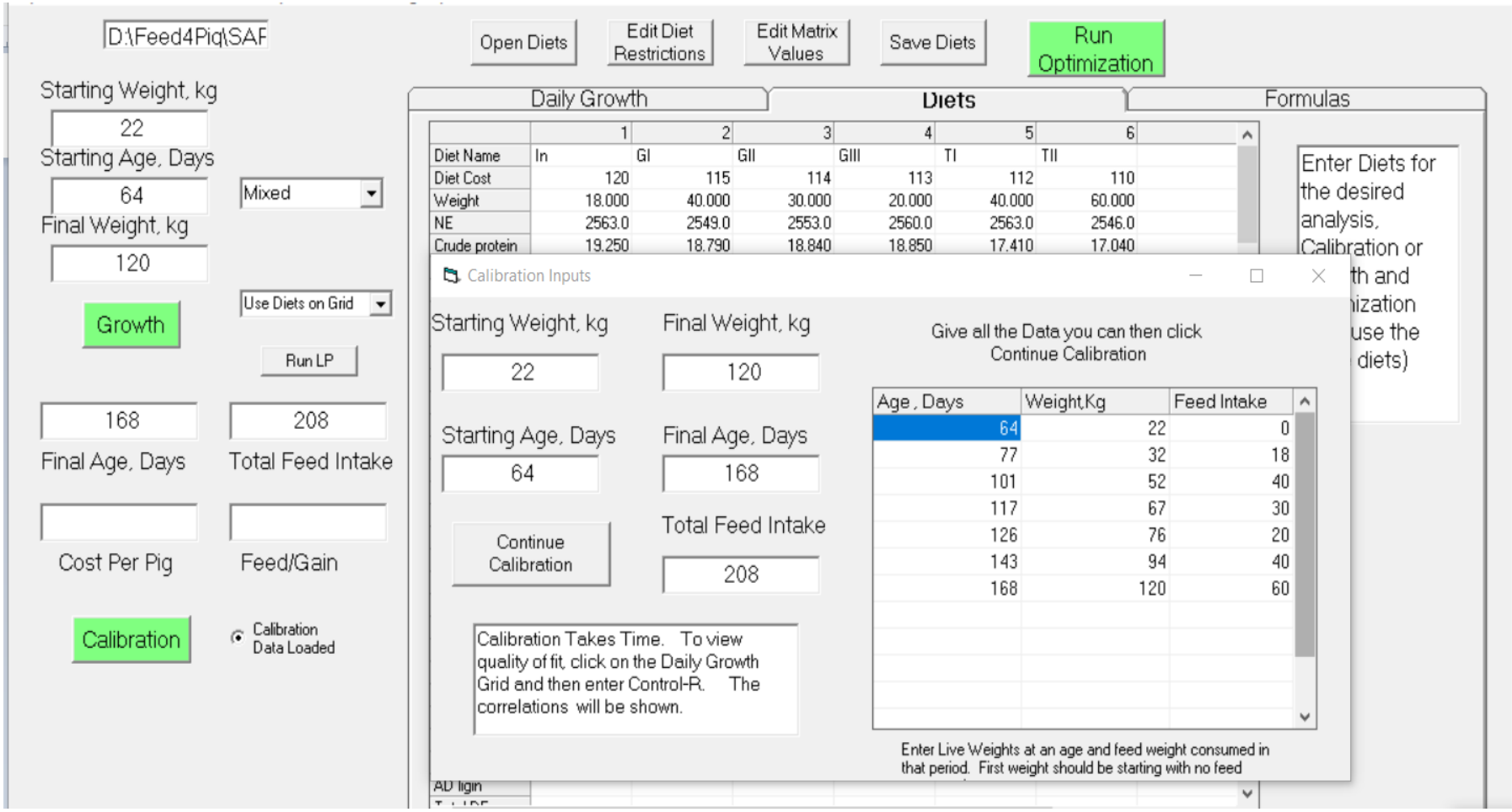
The Energy is Net Energy and the Amino Acids are Available. Price is a major driver of least cost growth. The values can be copied and pasted. Use the right click button to copy the whole grid.



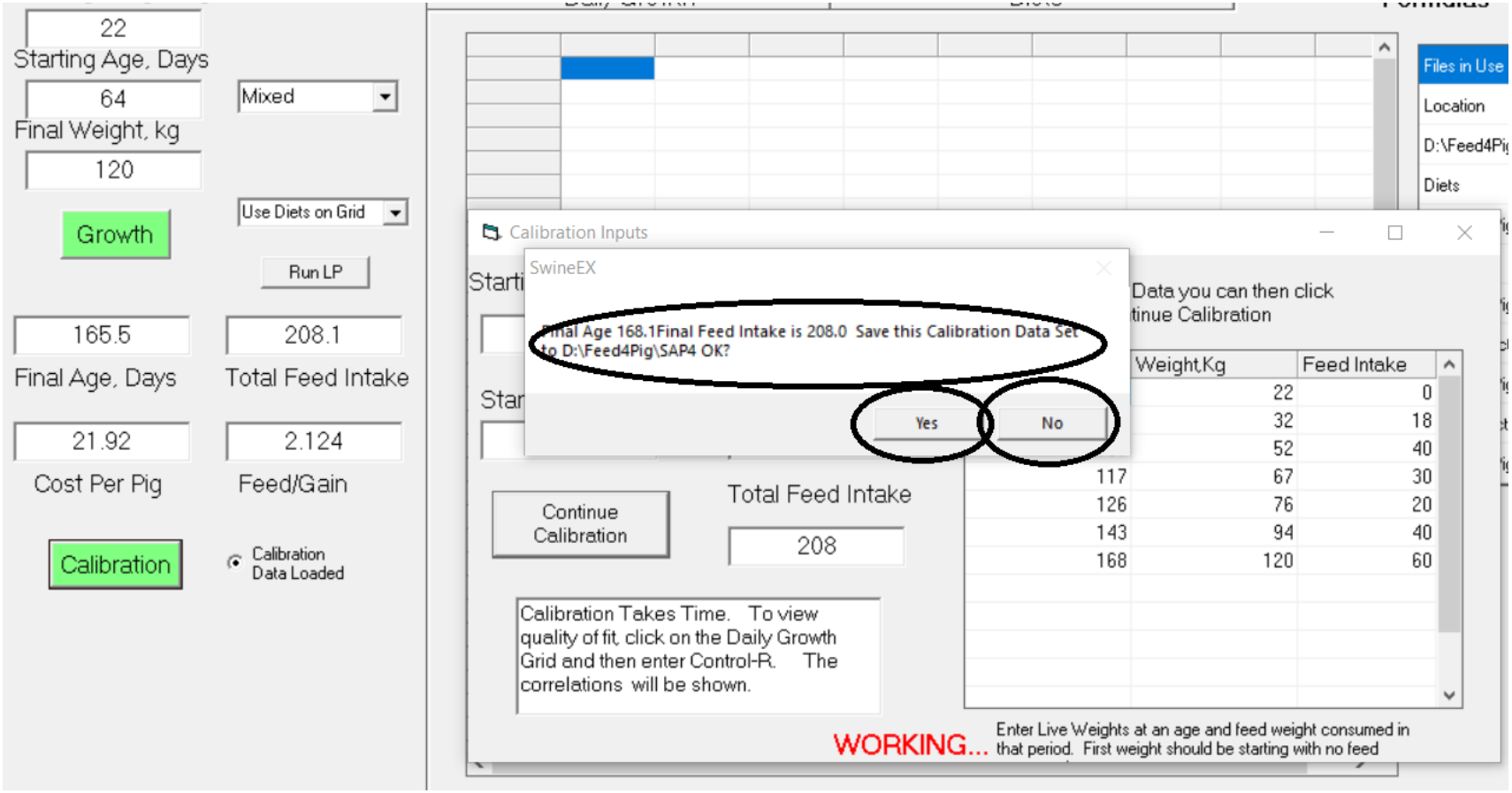
Calibration is the First Step

- To make it easy here, I will recalibrate the existing location.
- We need the diet nutrients in the Diet Grid along with the amounts of each feed
- The Energy is Net Energy, Amino Acids are available. Energy, protein and at least lysine are required.
- Then, we need the weights of your Calibration Herd when feed is changed.
  - This is because we need to capture the growth curve with the intake of YOUR Diets.
- Set Herd Sex (Male, Female or Mixed).
- Use the Diets on the Grid
- Click Calibration and we get a new window to add starting and final weights of the Herd, and total feed intake of the herd.
- Last we add the age, and weights when feed intake changed. Keeps the growth curve correctly focused.
- In this example, I have used data from a published study. There were six diets and a mixed sex herd.
- We see it on the Windows on Next Page. Calibration does not require feed conversion or pig cost.

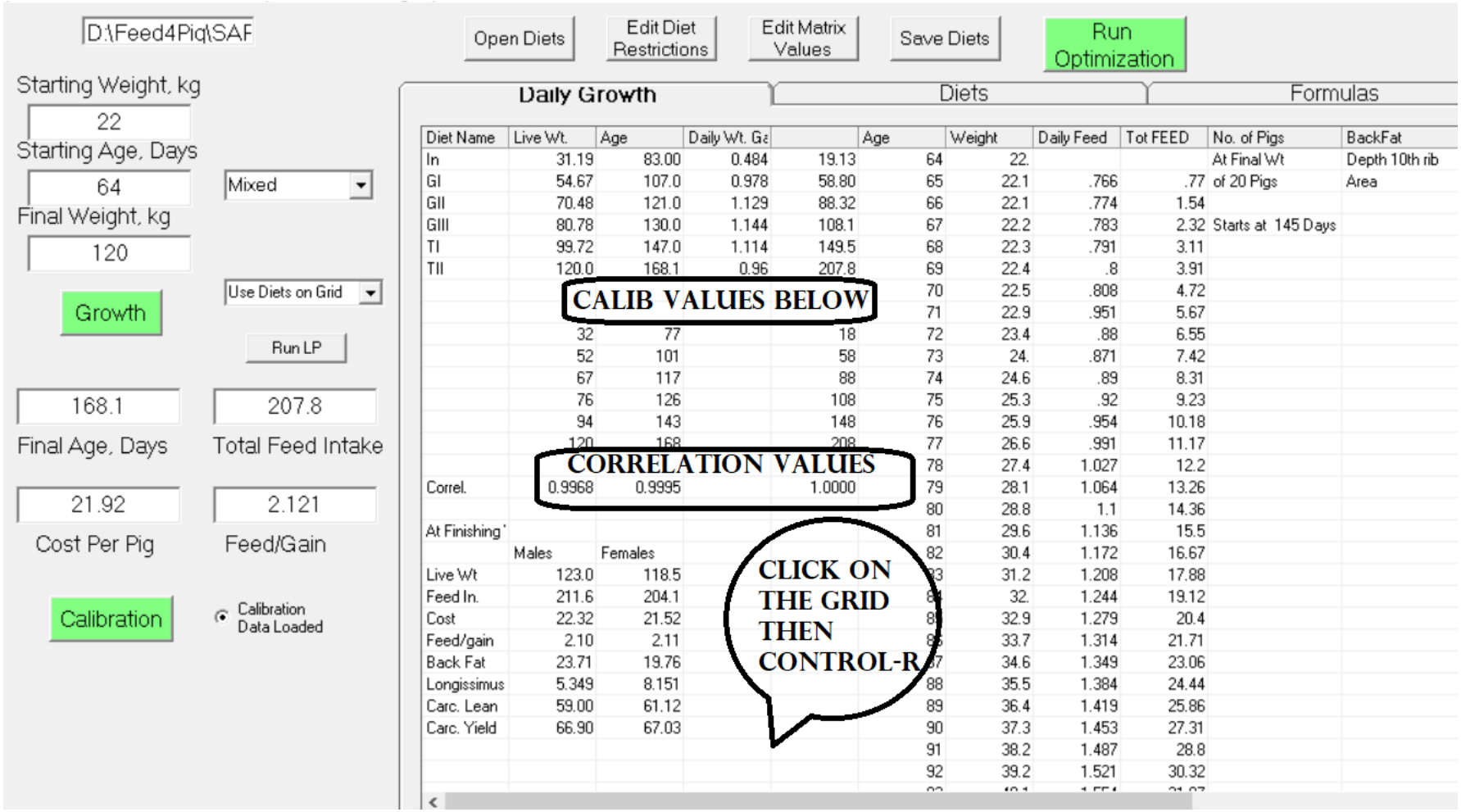
A Calibration Set Up ready to Run



Here are the Final Results.
You can change the name here or cancel. If the results are not close, take the time to run it again. Starting point matters and will be this one.

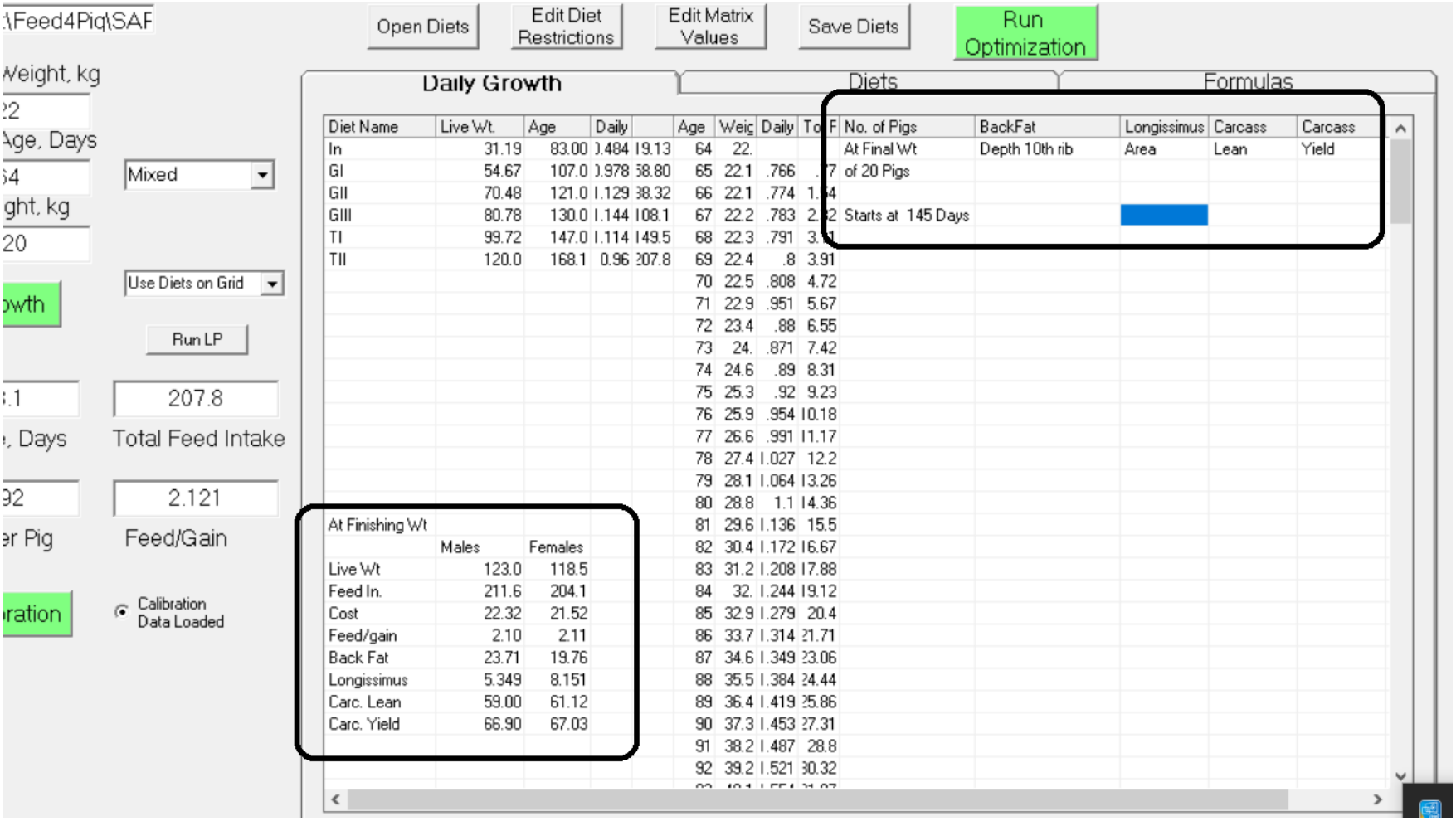


ACCURACY? Run Growth and Then Click on the Grid, Enter Control-R together and see your calibration numbers and the correlation between Predicted Values which are Above the Given Values.



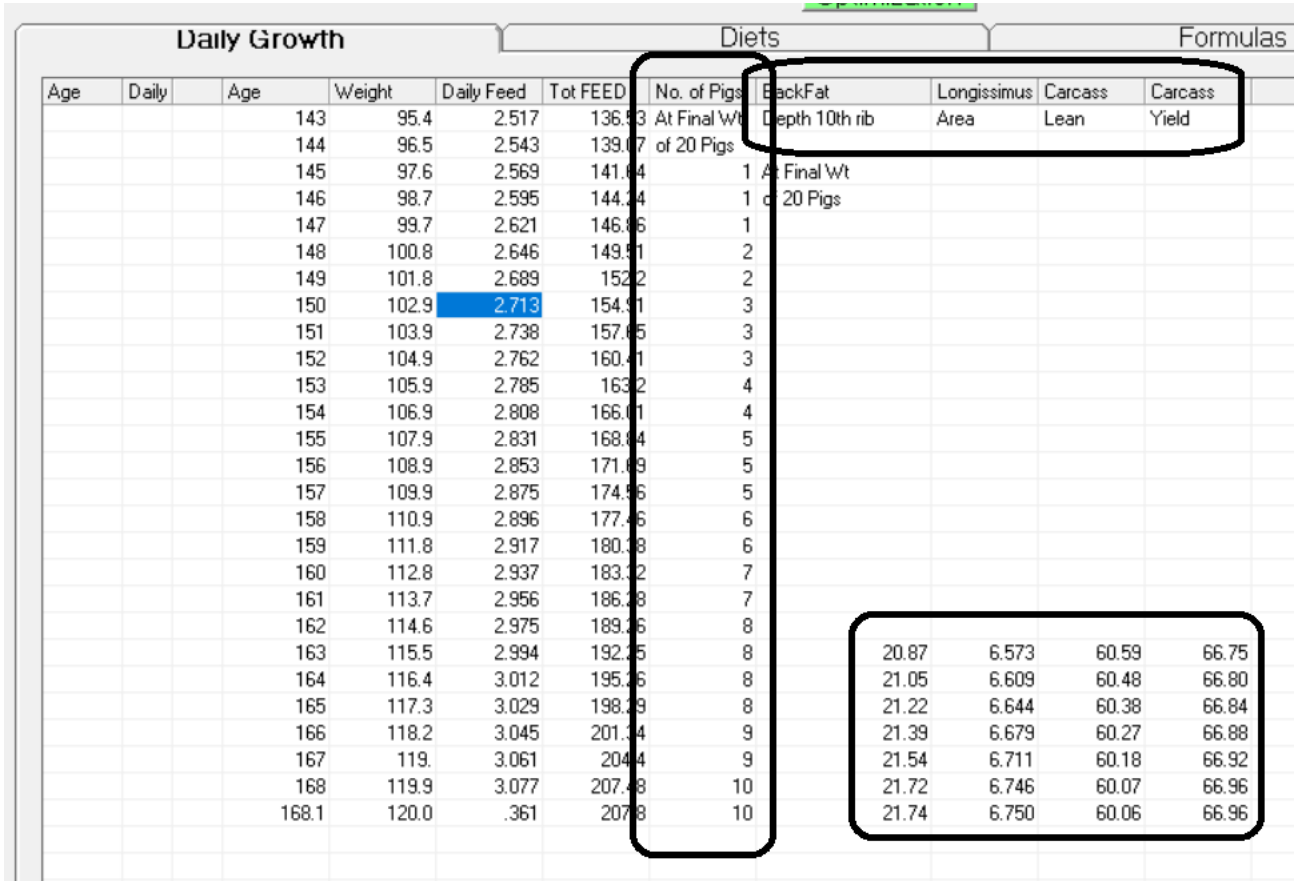
Diet Name	Live Wt.	Age	Daily Wt. Ga		Age	Weight	Daily Feed	Tot FEED	No. of Pigs	BackFat
In	31.19	83.00	0.484	19.13	64	22.			At Final Wt	Depth 10th rib
GI	54.67	107.0	0.978	58.80	65	22.1	.766	.77	of 20 Pigs	Area
GII	70.48	121.0	1.129	88.32	66	22.1	.774	1.54		
GIII	80.78	130.0	1.144	108.1	67	22.2	.783	2.32	Starts at 145 Days	
TI	99.72	147.0	1.114	149.5	68	22.3	.791	3.11		
TII	120.0	168.1	0.96	207.8	69	22.4	.8	3.91		
					70	22.5	.808	4.72		
					71	22.9	.951	5.67		
	32	77		18	72	23.4	.88	6.55		
	52	101		58	73	24.	.871	7.42		
	67	117		88	74	24.6	.89	8.31		
	76	126		108	75	25.3	.92	9.23		
	94	143		148	76	25.9	.954	10.18		
	120	168		208	77	26.6	.991	11.17		
					78	27.4	1.027	12.2		
Correl.	0.9968	0.9995		1.0000	79	28.1	1.064	13.26		
					80	28.8	1.1	14.36		
At Finishing					81	29.6	1.136	15.5		
	Males	Females			82	30.4	1.172	16.67		
Live Wt	123.0	118.5			83	31.2	1.208	17.88		
Feed In.	211.6	204.1			84	32.	1.244	19.12		
Cost	22.32	21.52			85	32.9	1.279	20.4		
Feed/gain	2.10	2.11			86	33.7	1.314	21.71		
Back Fat	23.71	19.76			87	34.6	1.349	23.06		
Longissimus	5.349	8.151			88	35.5	1.384	24.44		
Carc. Lean	59.00	61.12			89	36.4	1.419	25.86		
Carc. Yield	66.90	67.03			90	37.3	1.453	27.31		
					91	38.2	1.487	28.8		
					92	39.2	1.521	30.32		

Besides daily Weight and Feed Intake, the Program shows
Finishing Weights, Intake Cost, etc. On the lower Left.
It also shows the number of pigs reaching Final Weight by age and the etc.
below. Double clicking on the Weight and Daily columns also has Data.



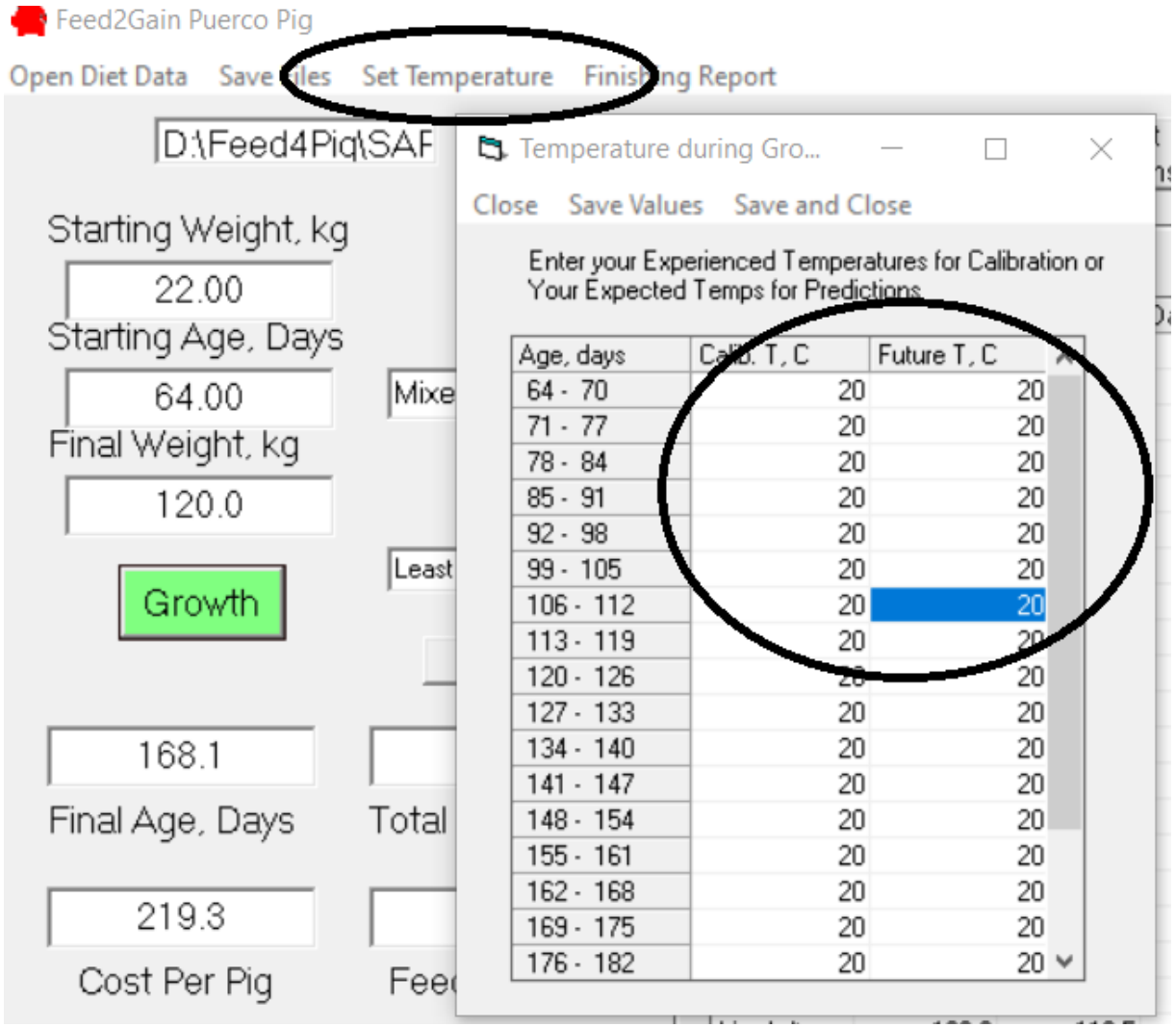
Of 20 pigs, 1 will <u>probably</u> reach 120 kg on Day 145, One more is likely on day 148 and half will be at or above 120 on the Final Day.

- Click and hold on the blue 2.713 feed intake on day 150 and the "Tool Tip"will show 2.7667 kg intake for males and 2.667 intake for Females.
- Click and hold on the weight, and see the males expected to average 104.8 and females 101.0 kg



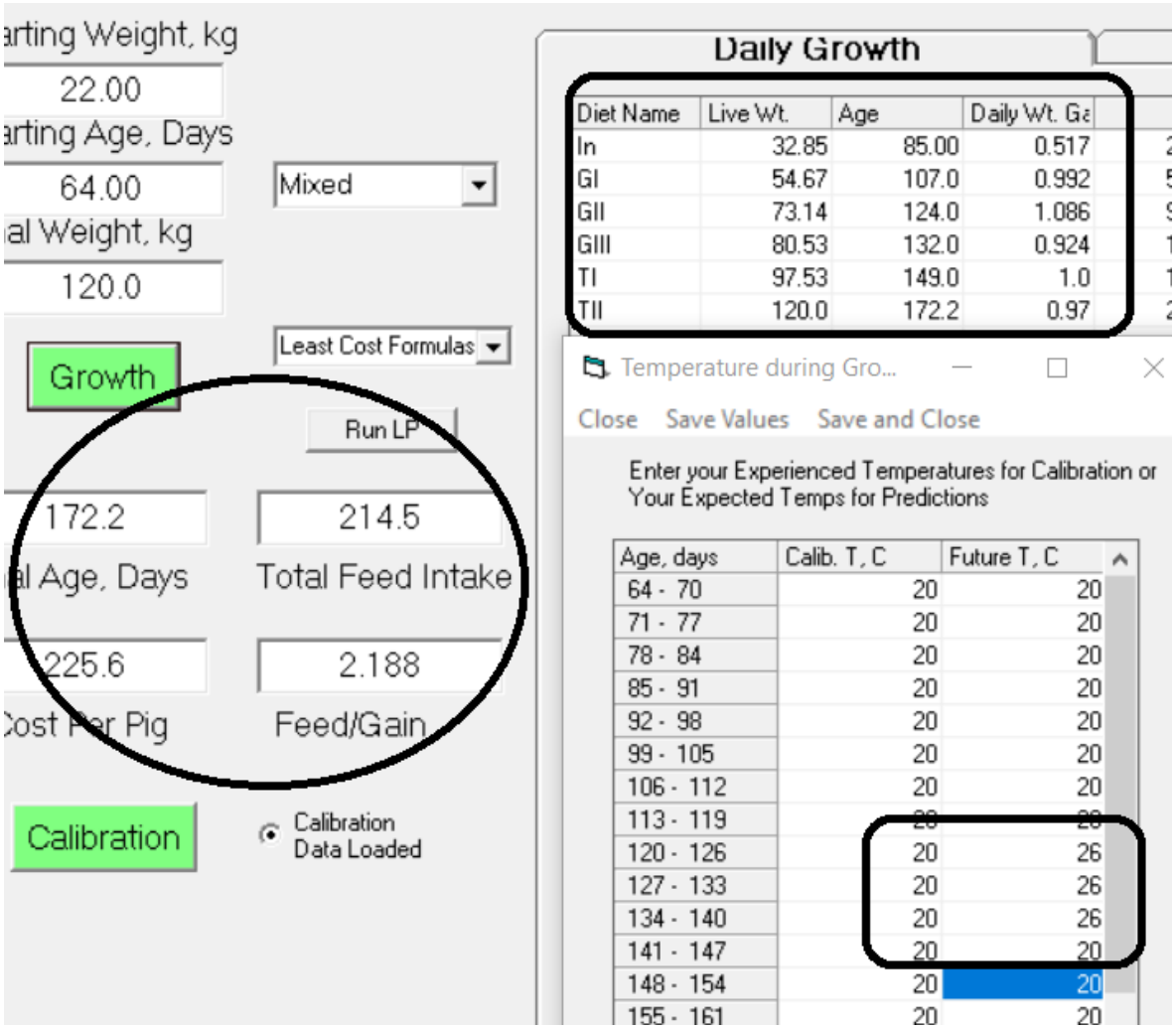
Effect of Temperature is in the Program and can evaluate the impact of a short term temperature change or be added at Calibration.

- The temperature is the “Average Daily Temperature” for each week in Celsius for now. If you enter this at calibration, the predictions of temperature change will be more accurate.
- If you save the temperature and keep the window open, save the temp and close the window or save to file (good idea) and close.



Made Up Example: Raise temperature 3 ° C from 20 to 26 for 3 weeks (days 120 to 140) . That is 68 ° to 79 °F

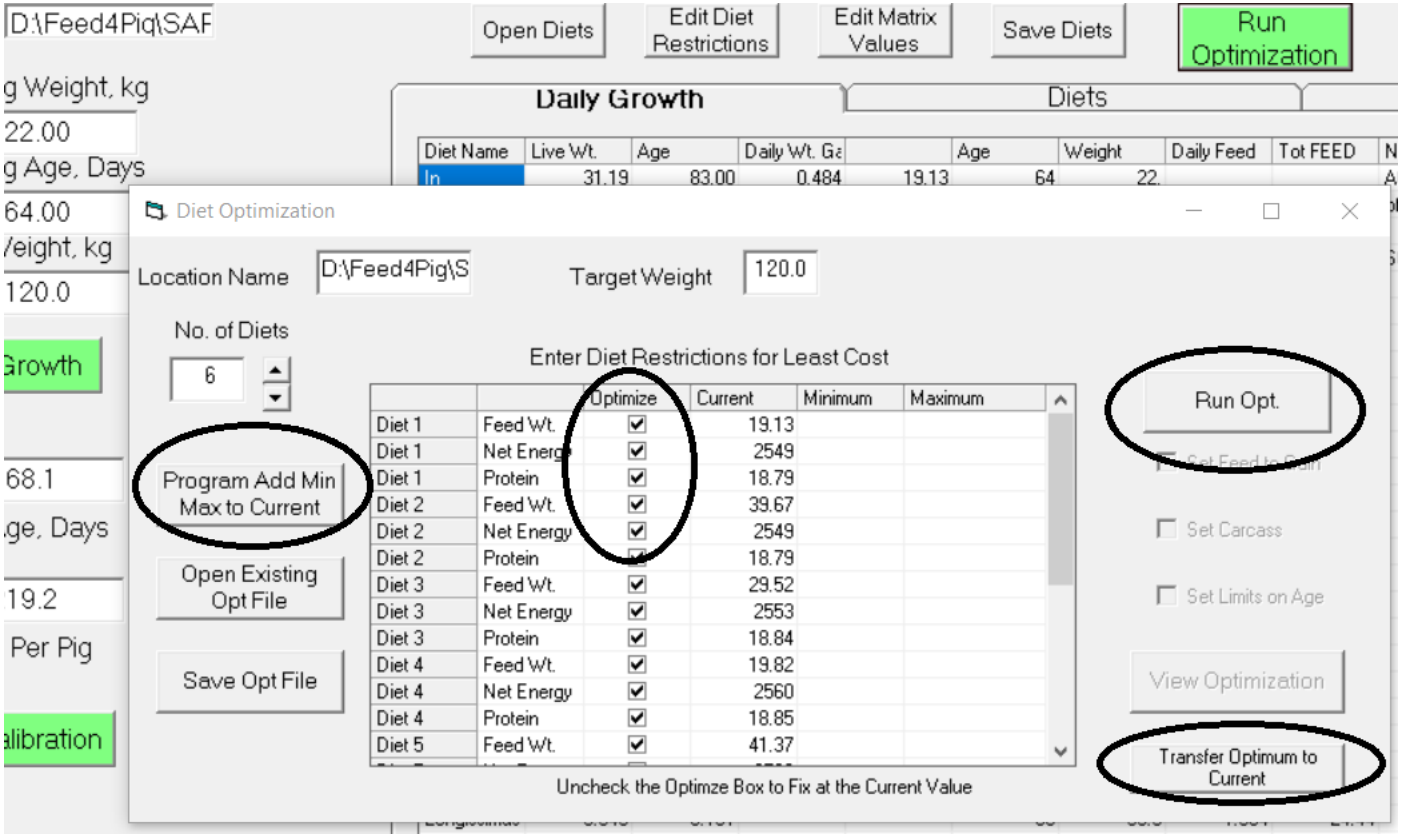
- Back three slides, we see the “cool” outcome. Here the age has gone up from 168 to 172 and feed intake up from 208 to 214.5. Heat reduces intake, slowing growth, but we have to feed the animals more days to get the final weight.
- Costs are up from 219.3 per pig to 225.6. Currency is not US.
- Our first 120 kg pig would be at about 149 days.



Optimization

- Now, with the program focused on your herd's growth with your diets, it can more accurately predict future outcomes.
- The calibration step requires only a current feeding program and accurate costs. It is your costs, your feeds and your pigs that are important. Nutrient content is often hard to get exact but costs tend to be more important. That said, exact is good.
- The program requires having run the Growth step to have a starting point. It will use the final weight from that step.
- The program has a button to add Minimum and Maximum values for each diet, but be sure to use ones you are comfortable with.

The Optimization Window below shows the button to add Min-Max values. The "Run Opt" button is to get the optimization running.
The other two highlights are the check boxes that, if unchecked, keep the program from changing these input values. The other will transfer the optimization result to the Daily Growth Diets.

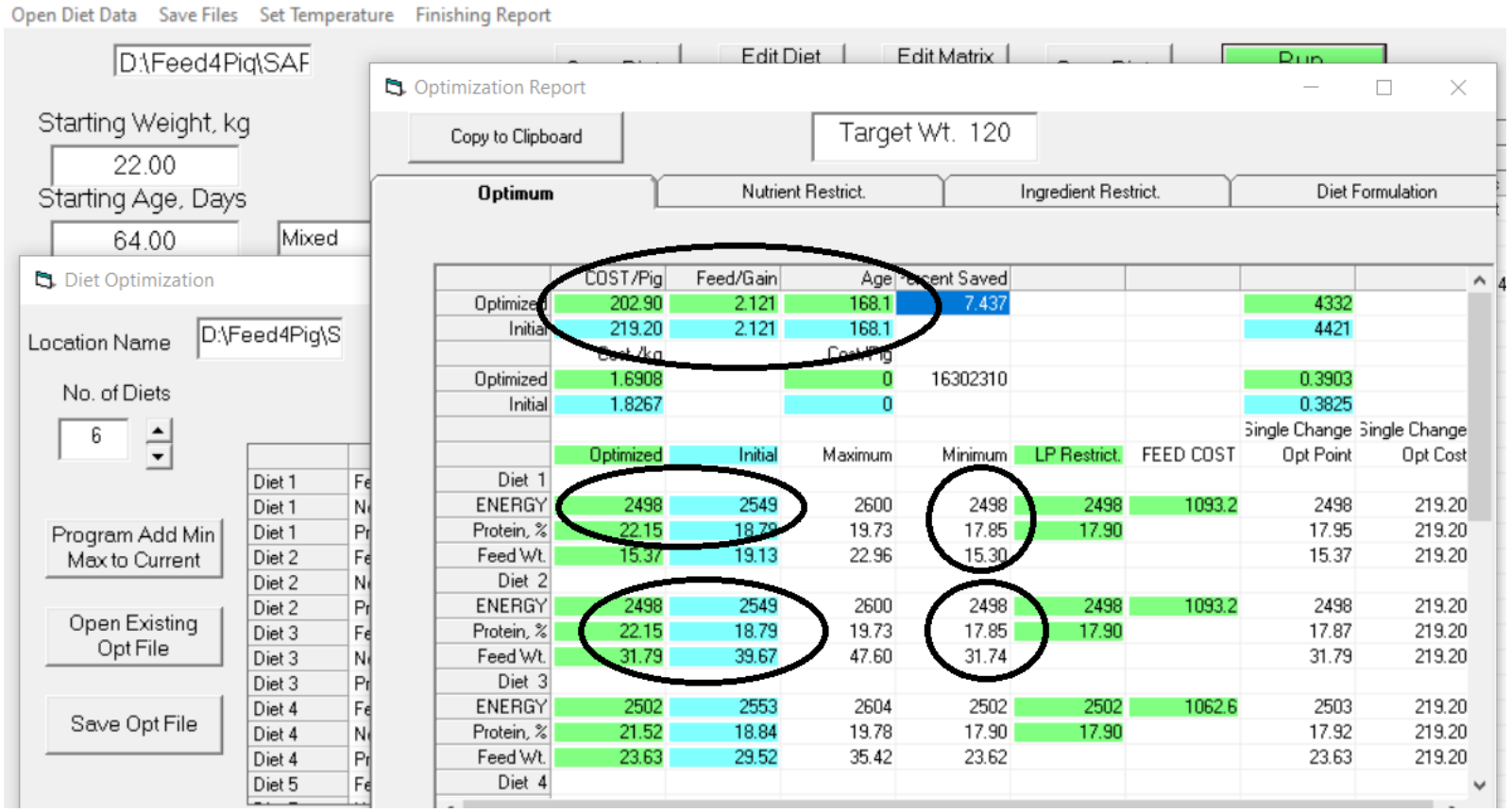


If the program is set to "Use Diets on Grid" the Energy and Protein will be unchecked, automatically. This can be useful to see how much to feed.

1) The Optimization Results look like this. The Cost/pig is top left. In my made up case, the cost was lowered a lot. Feed2Gain and Age did not change.

2)Feed Restrictions, Ingredient Formulas and Diets are shown on the other Tabs.

3) Lastly, look at the Optimized Diet Values. The Optimized are below the Initial in all the diets shown. In this made up case, Energy, Protein (and Lysine) and Feed Weights went to the minimum allowed. Like a ball, the minimization usually winds up at at least one min or max value, so these should be carefully considered.



Under Construction
May not be ready for Prime Time.

- Keep in mind that the program is just getting to the point of being useful. It may fail. We would love to know when and fix it. Temperature and weight conversions are easy for a computer and will be added.
- The USER MUST be comfortable about any change made in the actual feeding program. If the program.
- Look at the outcomes, challenge the extremes of your comfort and then move back to find the best trade-off on cost and comfort.

Let us know what you think.

- Should you have concerns, share them with us.
- If you have good data that can help, let us know.
- If you have ideas of what you would like to see or better ways to present what is here, let us know.
- If you buy feed, keep in mind that the feed supplier is doing his best for you and all their customers. So, what they supply is designed for all level of users without the customized consideration of your Herd's experience.
- This program is designed to help you look at the interaction of your herd and your feeds. More specifically than for all other growers. This is just a light into the issue of what might be best for you.
- Frank Ivey, fjivey@feed2gain.com