Forecasting Your Mailbox Milk Price
An Application to Forecast Mailbox Prices for Individual Dairies

Many variables factor into determining the mailbox price for individual dairies. Most producer milk prices are based off of announced, standardized prices, such as the Federal Milk Marketing Order Class III price. However, variables unique to each dairy impact the final milk price for individual dairies. These variables include, but are not limited to, butterfat and protein percentages, premiums for quality and volume, and hauling. Therefore, no dairy is paid exactly the Class III price, which is based on milk testing 3.5% butterfat, 2.99% true protein and 5.69% other solids. Given that Jersey milk is significantly higher in butterfat and protein than the Class III standard, mailbox prices for Jersey milk are also substantially higher than the announced Class III price. However, over time, a predictable relationship exists between the Class III price and each individual dairy's mailbox milk price.

National All-Jersey Inc. (NAJ) partially funded a project led by Dr. Brian Gould of the University of Wisconsin-Madison to develop an application to forecast mailbox prices for individual dairies for a 12 month period. The Excel-based program was completed last month and is available from NAJ (naj@usjersey.com) or Dr. Gould (bwgould@wisc.edu).

The price forecast uses three processes. First, it compares the dairy's historical mailbox prices to historical Class III and IV prices to determine the relationship between the two prices, known as basis. Second, the analysis uses previous monthly butterfat and protein tests to project monthly component levels into the future. Finally, the analysis accesses current Class III and IV futures prices and combines them with the dairy's historical basis and projected components to forecast a mailbox price for the following 12 months.
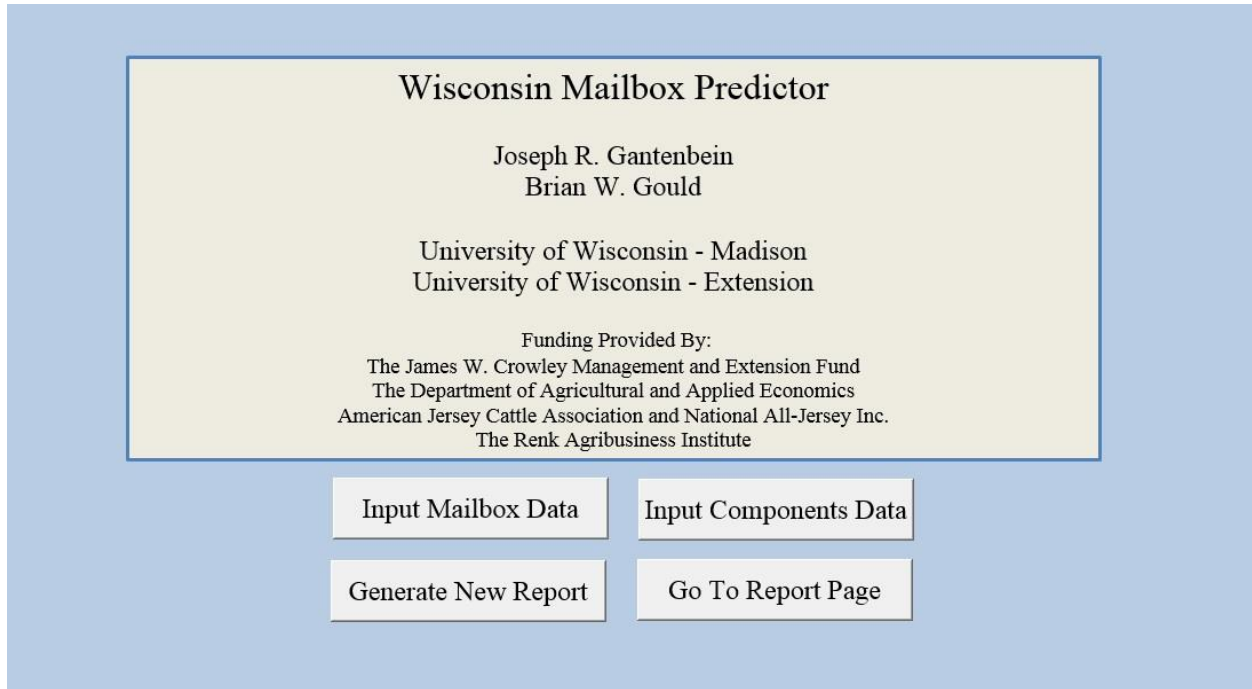
Getting Started

The forecasting application requires that the PC being used be connected to the Internet. In addition, Macros must be enabled in Excel (directions at https://goo.gl/JJfL9F), and the regression analysis add-in package that is available to all Excel owners must be installed (directions at http://tinyurl.com/o8wkaoo).

Before starting the forecast process, three pieces of monthly data are needed from your dairy: (1) mailbox milk prices, (2) butterfat tests and (3) protein tests. In order to work well, the model requires the four most recent years of monthly data. Having data from additional years adds to the reliability of the forecast. Ten to 15 years worth of data is most ideal.

Using the Mailbox Predictor

After completing installation and making sure you are connected to the Internet, open the application. From the main screen *(shown below)*, select the menu option to **Input Mailbox Data**.

Wisconsin Mailbox Predictor

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American Jersey Cattle Association and National All-Jersey Inc.
The Renk Agribusiness Institute

Input Mailbox Data   Input Components Data

Generate New Report   Go To Report Page

Now enter your monthly mailbox prices. Select **Save Mailbox Data** and then **Return to Main Page**.

Either enter your Mailbox Data directly into the table or click the *Enter Mailbox Data* Button.

Enter Mailbox Data

Save Mailbox Data

Retrieve Saved Data

Clear Table

Show Components

Return to Main Page

Your Mailbox Price Data

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2000												
2001												
2002												
2003												
2004												
2005												
2006												
2007												
2008												
2009												
2010												
2011												
2012												
2013												
2014	$32.24	$34.06	$33.62	$31.85	$28.94	$28.61	$29.40	$30.94	$34.02	$34.34	$31.85	$27.86
2015	$24.17	$22.82	$21.25	$20.12	$19.92	$19.64	$20.08	$21.04	$24.25	$24.97	$27.28	
2016												
2017												
2018												
2019												
2020												

The next step is to select **Input Components Data** from the main page.

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The **Protein Content %** screen will open. Enter your protein tests into the empty cells for the appropriate month and year. When completed, select **Save Protein Data**.

Protein Content (%)

Year \ Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2000												
2001												
2002												
2003												
2004												
2005												
2006												
2007												
2008												
2009												
2010												
2011												
2012												
2013												
2014	3.95%	4.00%	3.91%	3.56%	3.36%	3.40%	3.41%	3.49%	3.65%	3.97%	3.98%	3.87%
2015	3.89%	3.92%	3.75%	3.47%	3.39%	3.35%	3.35%	3.46%	3.70%	3.93%	3.99%	
2016												
2017												
2018												
2019												
2020												

Buttons (left): Return to Main Page; **Show Butterfat** (circled); Show Protein; Show Mailbox

Buttons (right): Enter Protein Data; Save Protein Data (← arrow); Retrieve Saved Protein Data; Clear Table

Then select **Show Butterfat** *(black circle, upper left, above image).* A new screen will be displayed with **Butterfat Content %** at the top. Enter your information, then select **Save Butterfat Data**.

After you have entered both components, select **Return to Main Page**.

The next step is to select **Generate New Report**. Select the *start and end month and year* for your report in the **Set Regression Parameters** pop-up box. You must select *Include Components Data in Regression*. Then click the "Generate Report" tab located immediately below.
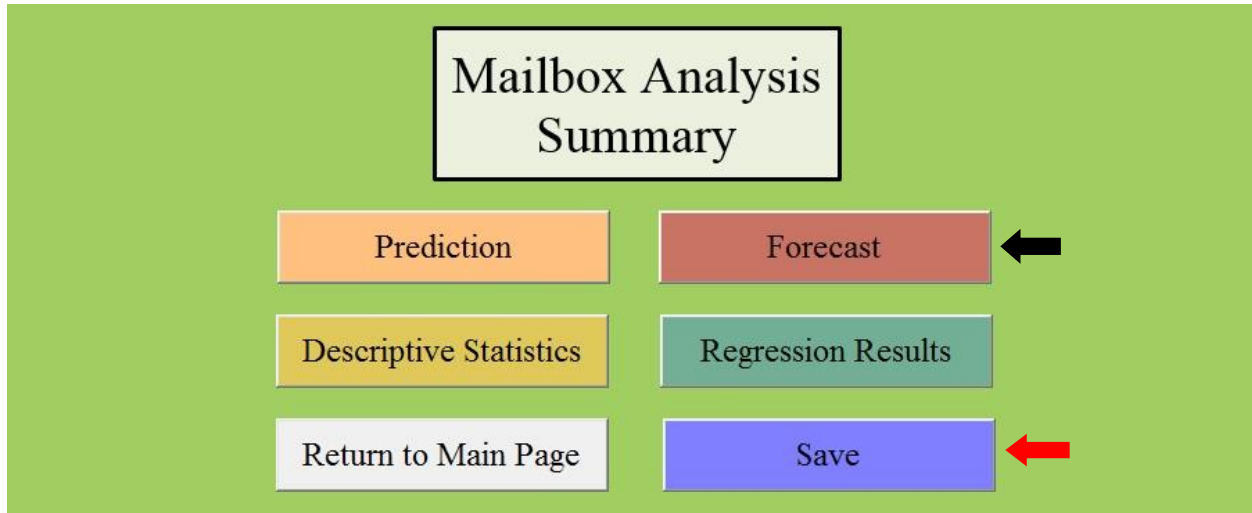
Your Mailbox Price Data

Either enter your Mailbox Data directly into the table or click the *Enter Mailbox Data* Button.

Buttons (left): Enter Mailbox Data; Save Mailbox Data; Retrieve Saved Data; Clear Table; Show Components; Return to Main Page

← Select Dates First
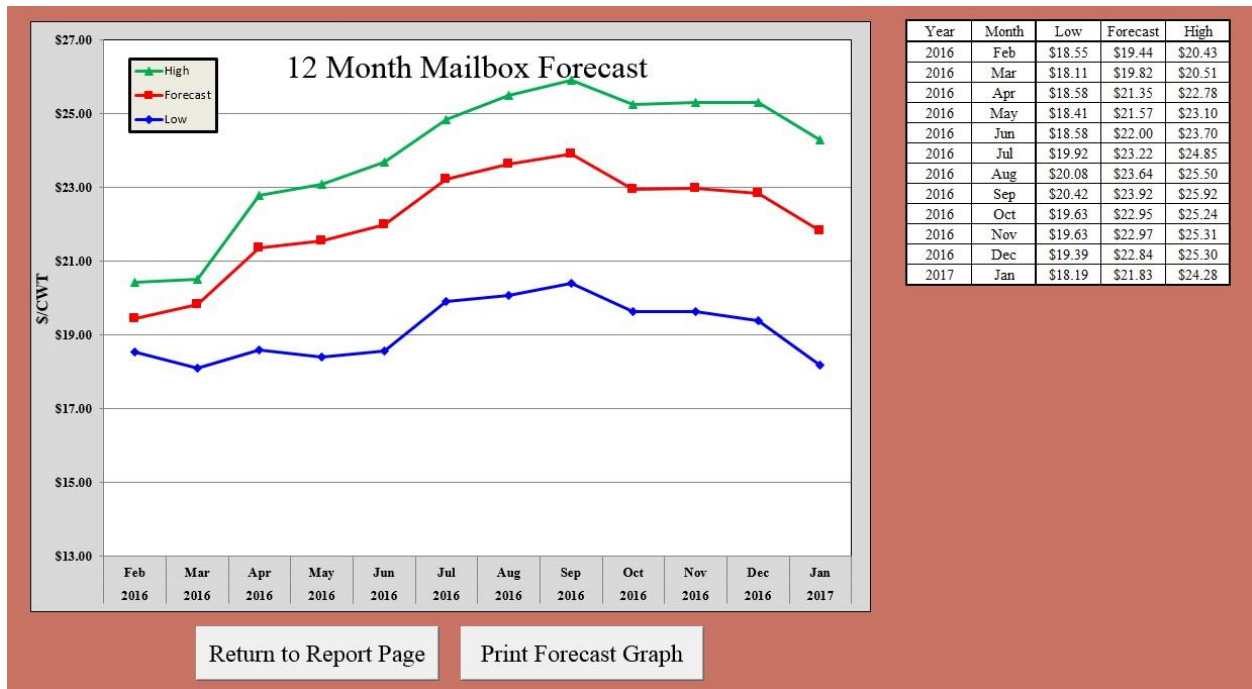
Set Regression Parameters pop-up:
- Start Month: Jan
- Start Year: 2014
- End Month: Nov
- End Year: 2015
- Include Components Data in Regression ← Select Second
- Generate Report ← Select Third
- Cancel

Year \ Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2000												
2001												
2002												
2003												
2013												
2014	$32.24	$34.06	$33.62	$31.85	$28.94	$28.61	$29.40	$30.94	$34.02	$34.34	$31.85	$27.86
2015	$24.17	$22.82	$21.25	$20.12	$19.92	$19.64	$20.08	$21.04	$24.25	$24.97	$27.28	
2016												
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When the report generation step is complete, the **Mailbox Analysis Summary** page will be displayed.

Select the **Forecast** button. Your mailbox price forecast for the next 12 months will be displayed in graph and table formats, along with projected upper and lower ranges.

Year	Month	Low	Forecast	High
2016	Feb	$18.55	$19.44	$20.43
2016	Mar	$18.11	$19.82	$20.51
2016	Apr	$18.58	$21.35	$22.78
2016	May	$18.41	$21.57	$23.10
2016	Jun	$18.58	$22.00	$23.70
2016	Jul	$19.92	$23.22	$24.85
2016	Aug	$20.08	$23.64	$25.50
2016	Sep	$20.42	$23.92	$25.92
2016	Oct	$19.63	$22.95	$25.24
2016	Nov	$19.63	$22.97	$25.31
2016	Dec	$19.39	$22.84	$25.30
2017	Jan	$18.19	$21.83	$24.28

Click the **Prediction** option to see how closely the process would have predicted the mailbox price to your actual price for the time period covered by the data you originally entered.

Click **Save** to save the Mailbox Predictor as an Excel Macro-Enabled Workbook file to your computer. By saving your file, you will only have to enter your data once. You can update the information on a regular basis when you obtain new mailbox prices or when you want to re-estimate your mailbox forecast to reflect current market conditions. If you have multiple herds you can save the original file more than once, under different file names to differentiate your herds so that there is a predictor to work from for each herd.

Please direct questions or concerns about this tool to NAJ at naj@usjersey.com or Dr. Gould at bwgould@wisc.edu.

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