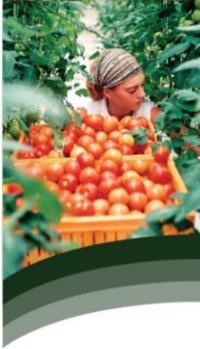




United States Department of Agriculture

Agricultural Marketing Service

Creating Opportunities for American Farmers and Businesses





Agricultural Marketing Service
Creating Opportunities for American Farmers and Businesses

MARS API
Application Programming Interface

March 29, 2018



Welcome to today's webinar on the MARS API for beginners. In this discussion we will explain the MARS API and how to use it in simplest terms.

Today's Presenter

Jessica Crum

Dairy Products Marketing Specialist

AMS Dairy Program

U.S. Dept. of Agriculture (USDA)



My name is Jessica Crum.

I'm with the USDA's Agricultural Marketing Service, Dairy Program.

I also have Michael Gunderson and Alex Wright with me today.

They will be responding to questions as they come in.

This session is being recorded and within several days it will be posted to the My Market News website in the API tab.

What is MARS?

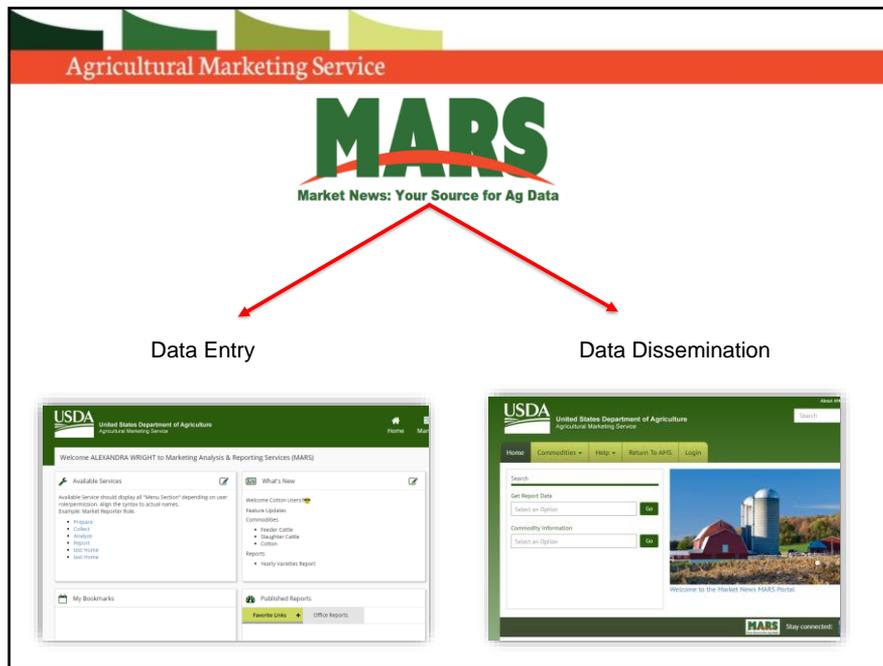
- Market Analysis & Reporting Services
- Improves:
 - Data quality
 - Market transparency
 - Customer service



Before diving into the world of code and data, let's take a step back and talk about MARS.

USDA Market News has launched a new web-based platform called Market Analysis & Reporting Services, or MARS for short.

It is a state-of-the-art electronic data platform that presents agricultural data sets in a way that improves data quality, promotes market transparency, and improves customer service.



There are two sides to MARS.

First, there is the data entry side where USDA Market News reporters collect and analyze market data.

Second, My Market News is the public-facing side where this data is disseminated.

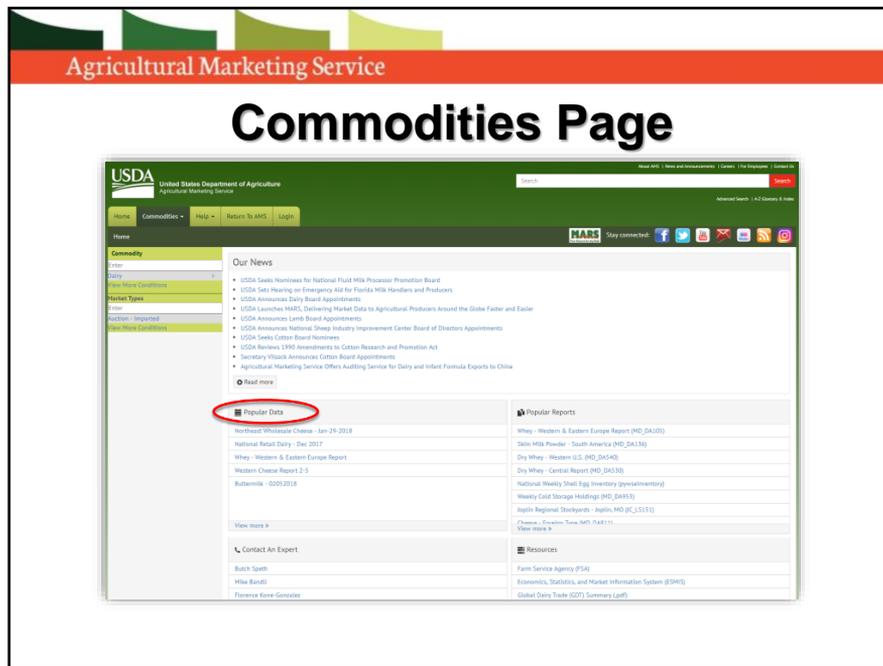
The API that we are talking about today lives on My Market News, the public side.



This is the home page for My Market News.

It provides multiple ways of retrieving data, including the traditional reports that USDA Market News is known for.

To get these, you would find the Commodity Information field and select a commodity you wish you see.



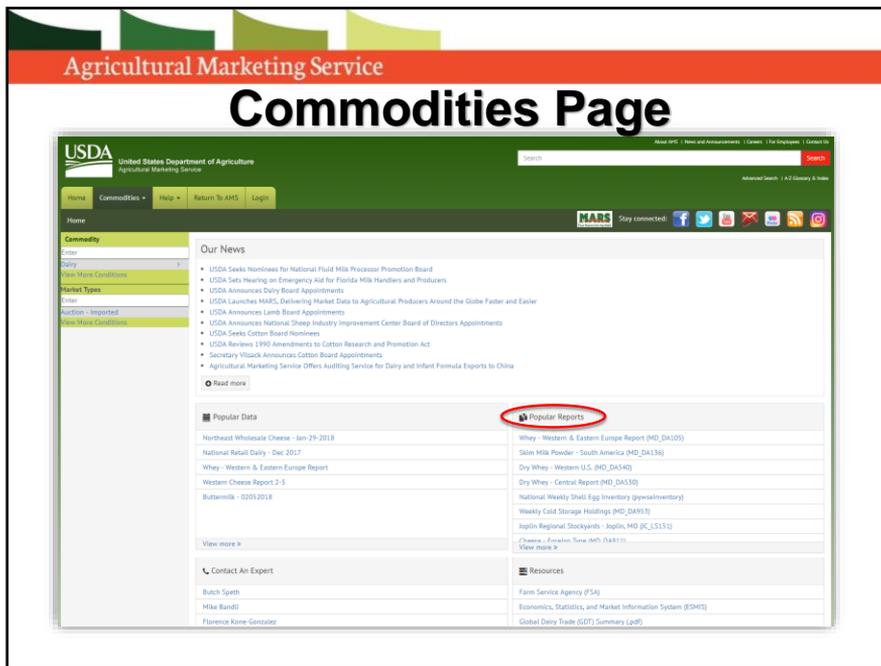
This will take you to the dynamic commodity page.

Here you can find all information about this commodity including news, resources, and contact information.

This is also where you would go to find a static report.

Popular Data are reports with the most views and can be found to left of the screen.

To view popular data, click on the report to open



On the Commodities page, you can also find a specific report by going to Popular Reports and selecting the report you are looking for.

Agricultural Marketing Service
Commodities Page

USDA United States Department of Agriculture
Agricultural Marketing Service

Home Commodities Help Return to AMS Login

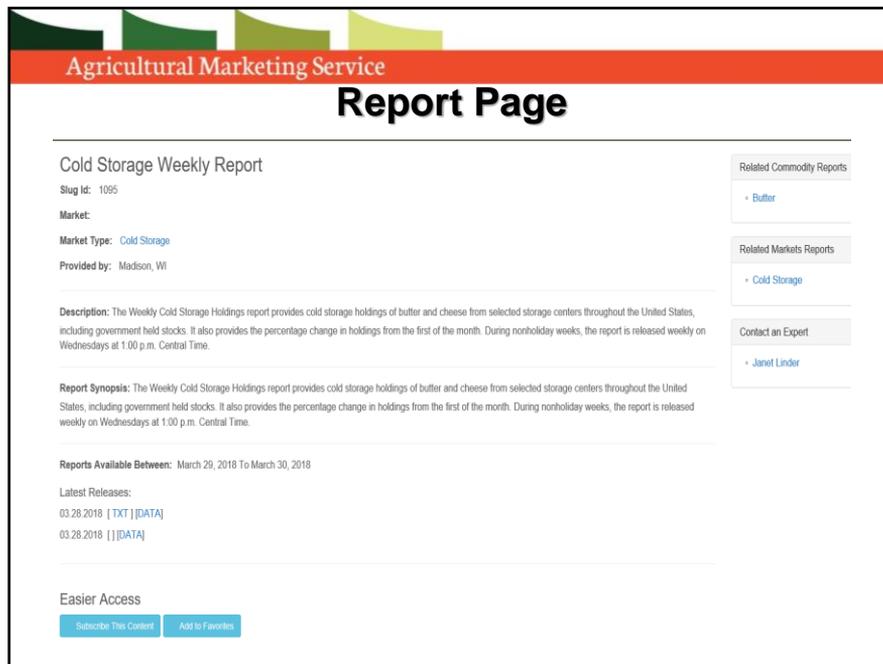
Our News

- USDA Seeks Nominations for National Fluid Milk Processor Promotion Board
- USDA Seeks Nominations for National Milk Producers Federation Board
- USDA Seeks Nominations for Emergency Aid for Family Milk Marketing and Producer
- USDA Announces Dairy Board Appointments
- USDA Announces Milk, Secondary Market Board to Agricultural Producers Around the Globe Foster and Easter
- USDA Announces Lamb Board Appointments
- USDA Announces National Sheep Industry Engagement Center Board of Directors Appointments
- USDA Seeks Cotton Board Nominations
- USDA Announces National Sheep Industry Engagement Center Board of Directors Appointments
- USDA Seeks Cotton Board Nominations
- USDA Announces Milk, Secondary Market Board Appointments
- USDA Announces Milk, Secondary Market Board Appointments
- Agricultural Marketing Service Offers Marketing Service for Dairy and Other

Popular Reports

- Whey - Western & Eastern Europe Report (MD_DA105)
- Skim Milk Powder - South America (MD_DA136)
- Dry Whey - Central Report (MD_DA530)
- Dry Whey - Western U.S. (MD_DA540)
- National Weekly Shell Egg Inventory (pywseinventory)
- Butter/Butteroil - Europe (MD_DA104)
- Joplin Regional Stockyards - Joplin, MO (JC_LS151)
- Cheese - Foreign Type (MD_DA811)
- [View more >>](#)

To view all the reports under Popular Reports, click View more.



Once you find the report you are looking for, you will be directed to that report's specific page.

For example, here is the Cold Storage Weekly Report.

You can see the Report ID (also known as the Slug ID), the description, and where the report is coming from.

To the right, you can see the expert associated with the report.

If you click on the name, that person's contact information will appear.

This is helpful for any questions or comments a person may have about a specific report.

At the very bottom you can subscribe to this content, meaning you are notified whenever a new report is published.

You can also add the report to your favorites.

Once a report is selected as your favorite, it will appear on your home page in My Market News

You can see all your favorites and subscriptions on your user profile.

Towards the bottom of the page is a link to the most recent data for that report.

Report Page

Filter Result

Collapse All

Save as CSV

Save as XML

DAIRY / HARD PRODUCTS / CHEESE

Report Begin Date	Report End Date	Published Date	Office Name	Office Code	Office City	Office State	Market Location Name	Market Location City	Market Location State	Market Type	Market Category	Slug Id	Slug Name	Quality	Holdings Unit	Holdings Current Lbs	Holdings 1stDayMTH Lbs	Holdings Change Lbs	Holdings Change Percent	CurrentMTH 1stDay
2018-03-26	2018-03-26	2018-03-28	Madison	DA-MD	Madison	WI	National Cold Storage		WI	Cold Storage	Dairy Market	1055	MD_DA953	N/A	LBS	86665000	87419000	-754000	-1.0000	2018-03-01

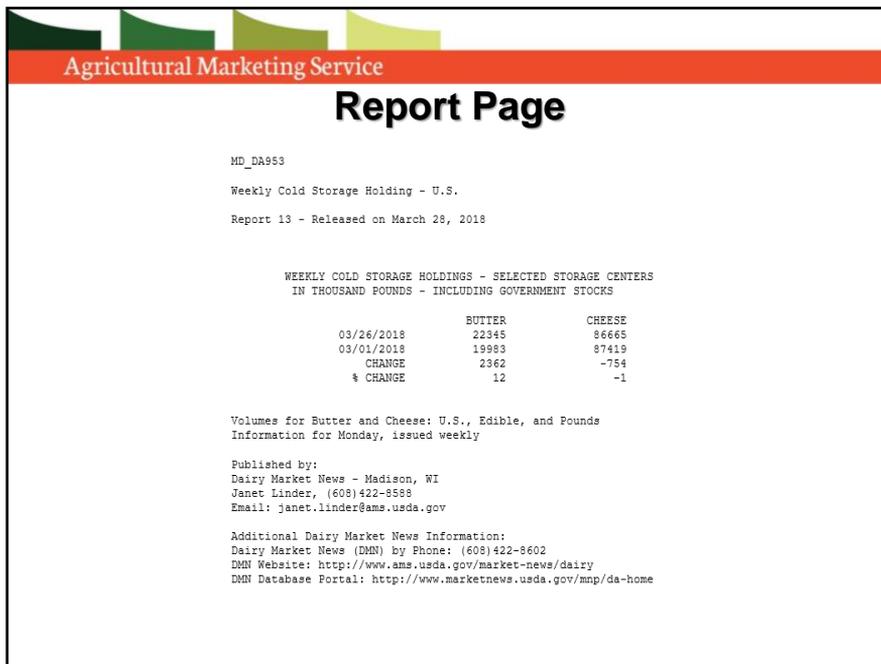
Show 10 entries



DAIRY / SOFT PRODUCT / BUTTER

Report Begin Date	Report End Date	Published Date	Office Name	Office Code	Office City	Office State	Market Location Name	Market Location City	Market Location State	Market Type	Market Category	Slug Id	Slug Name	Quality	Holdings Unit	Holdings Current Lbs	Holdings 1stDayMTH Lbs	Holdings Change Lbs	Holdings Change Percent	CurrentMTH 1stDay
2018-03-26	2018-03-26	2018-03-28	Madison	DA-MD	Madison	WI	National Cold Storage		WI	Cold Storage	Dairy Market	1055	MD_DA953	N/A	LBS	22345000	19983000	2362000	12.0000	2018-03-01

If you click on Data, it will take you to the Commodities Data page, which we will discuss momentarily.



Agricultural Marketing Service

Report Page

MD_DA953
 Weekly Cold Storage Holding - U.S.
 Report 13 - Released on March 28, 2018

WEEKLY COLD STORAGE HOLDINGS - SELECTED STORAGE CENTERS
 IN THOUSAND POUNDS - INCLUDING GOVERNMENT STOCKS

	BUTTER	CHEESE
03/26/2018	22345	86665
03/01/2018	19983	87419
CHANGE	2362	-754
% CHANGE	12	-1

Volumes for Butter and Cheese: U.S., Edible, and Pounds
 Information for Monday, issued weekly

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 Email: janet.linder@ams.usda.gov

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 DMN Website: <http://www.ams.usda.gov/market-news/dairy>
 DMN Database Portal: <http://www.marketnews.usda.gov/mmp/da-home>

You can also find a link to the actual report beside the Data link.

Pictured in this slide is the Cold Storage Weekly Report published by Dairy Market News.



In addition to reports, My Market News also makes pulling data easy.

On the home page, you will pick the report you want data for and it will show you the data available based on your selection.

This method allows you to get the most recent data for a report or you can select a range of dates, and get data for that entire range.

Agricultural Marketing Service
Cold Storage Report

Result

Filter Result

Collapse All Save as CSV Save as XML

DAIRY / HARD PRODUCTS / CHEESE

Report Begin Date	Report End Date	Published Date	Office Name	Office Code	Office City	Office State	Market Location Name	Market Location City	Market Location State	Market Type	Market Type Category	Slug Id	Slug Name	Quality	Holdings Unit	Holdings Current Lbs	Holdings 1stDay/HTH Lbs
2018-03-19	2018-03-19	2018-03-21	Madison	DA-MD	Madison	WI	National Cold Storage		WI	Cold Storage	Dairy Market	1095	MD_DA953	N/A	LBS	88791000	87419000

Show 10 entries

DAIRY / SOFT PRODUCT / BUTTER

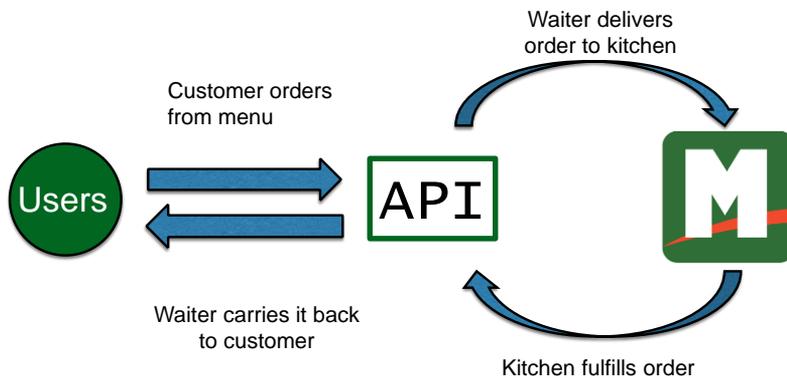
Report Begin Date	Report End Date	Published Date	Office Name	Office Code	Office City	Office State	Market Location Name	Market Location City	Market Location State	Market Type	Market Type Category	Slug Id	Slug Name	Quality	Holdings Unit	Holdings Current Lbs	Holdings 1stDay/HTH Lbs
2018-03-19	2018-03-19	2018-03-21	Madison	DA-MD	Madison	WI	National Cold Storage		WI	Cold Storage	Dairy Market	1095	MD_DA953	N/A	LBS	21455000	19983000

Here is screenshot of the Cold Storage Weekly Report, also known as the 1095 Report, found through the Get Report Data Search on the Home page.

Also, note that you are able to save the file as a CSV or XML directly from the My Market News site.

To retrieve large sets of data, you will use the API.

Restaurant Example



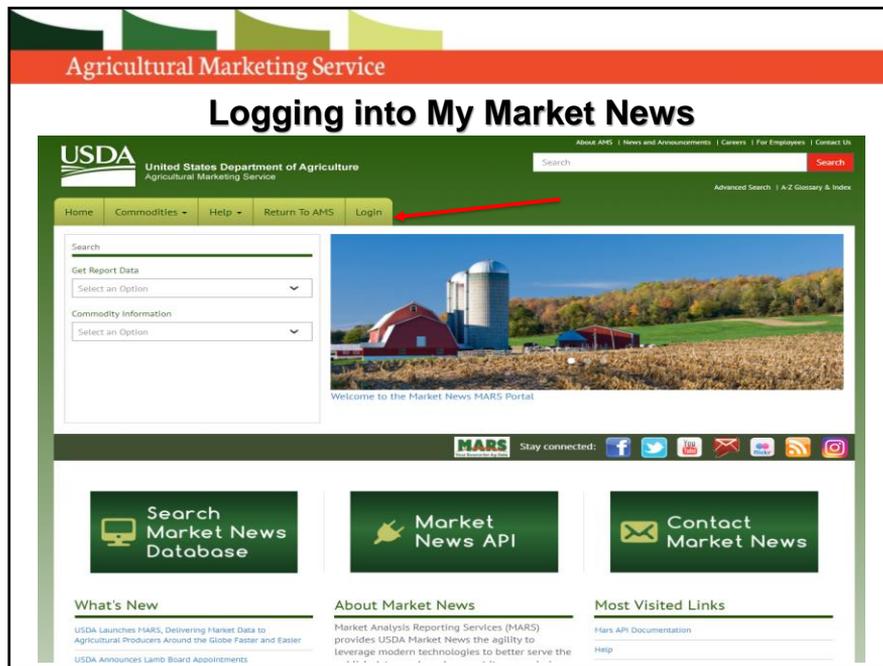
API stands for Application Programming Interface.

APIs allow two separate applications to talk to each other seamlessly.

Let's consider a restaurant example.

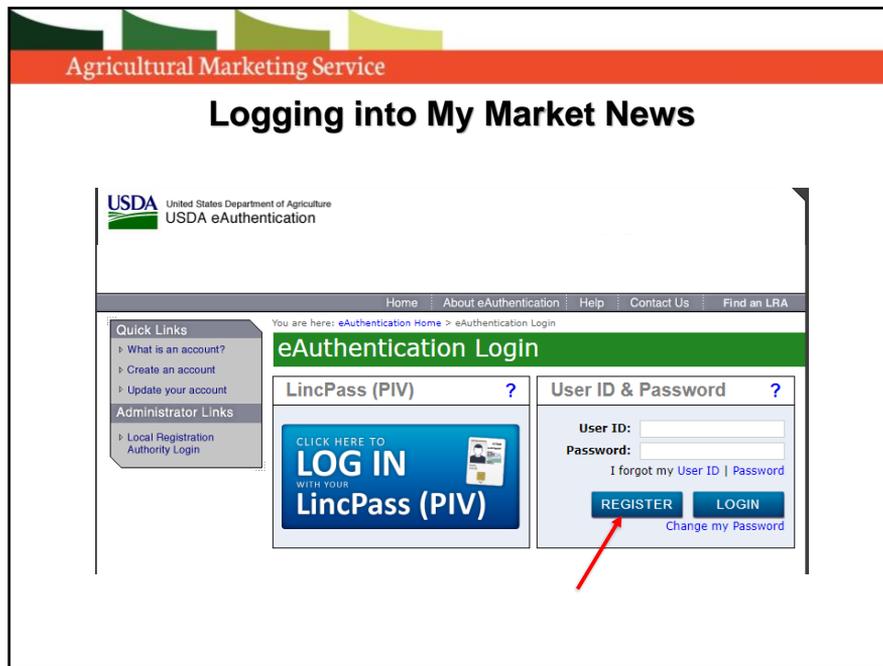
You, the customer, are sitting at the table with a menu of choices to order from, and the kitchen, or MARS, will fulfill your order.

You need a link to communicate your order to the kitchen and then deliver your food back to your table. That's where the waiter — or the API — enters the picture.



The first step to using the API is to create your personal login. Along with other functionality, this is a registration to use the API.

Click Login (see arrow indicating location of Tab).

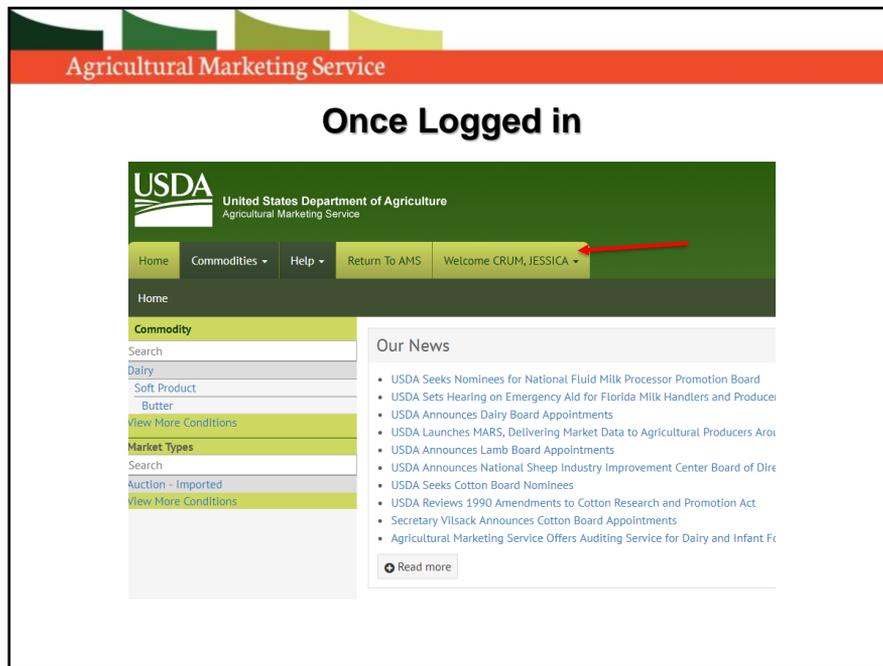


After clicking Login, you will be directed to this page.

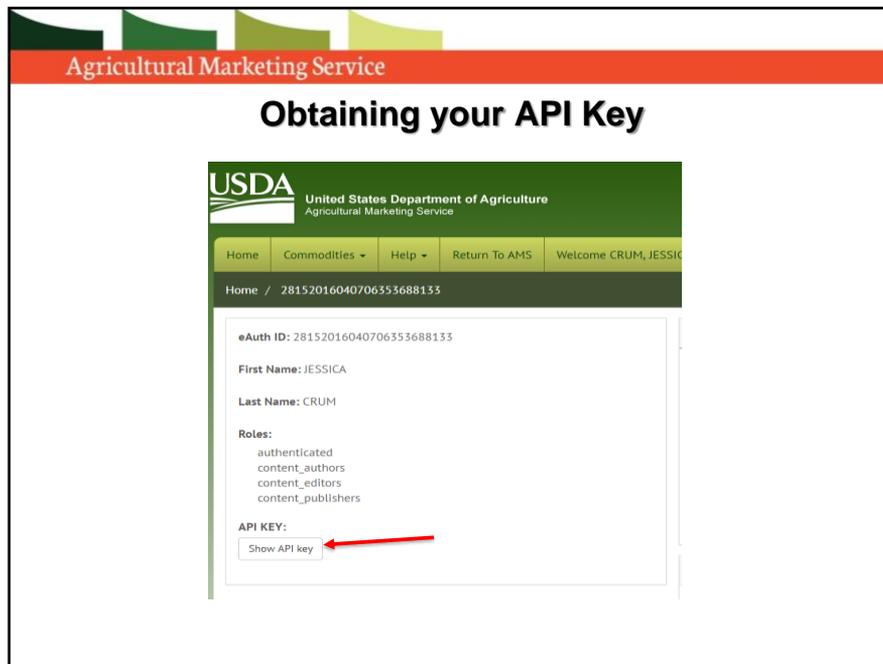
USDA uses a centralized authentication mechanism called E-Authentication.

It is free to all users.

To create an account, select "Register" (arrow) or, if you have a Lincpass, click the Lincpass button.



Once logged in, click on your profile (arrow).



You are assigned a unique key that enables you to retrieve data through the API.

You must use your API Key in your code.

In the interim, there is a test API key that you may use but once MARS gets into operation and maintenance mode, it will no longer be available.

Agricultural Marketing Service

Writing Code

```
JavaScript XHR ▾  
1 var data = null;  
2  
3 var xhr = new XMLHttpRequest();  
4 xhr.withCredentials = true;  
5  
6 xhr.addEventListener("readystatechange", function () {  
7   if (this.readyState === 4) {  
8     console.log(this.responseText);  
9   }  
10 });  
11  
12 xhr.open("GET", "https://marsapi.ams.usda.gov/services/v1/reports");  
13 xhr.setRequestHeader("Authorization", "Basic S25wbXh3JekxUnlBYnVjNjVRSmlkK2VnNG5JHzVrRmo6");  
14 xhr.setRequestHeader("Cache-Control", "no-cache");  
15 xhr.setRequestHeader("Postman-Token", "377ddd1f-e3da-40dc-87b4-4e17507e2f8c");  
16  
17 xhr.send(data);
```



An experienced coder knows what to write in her software to talk to the API.

She might write something like what we see here.

We are not experienced coders, however, so we need a little help from a third party program.

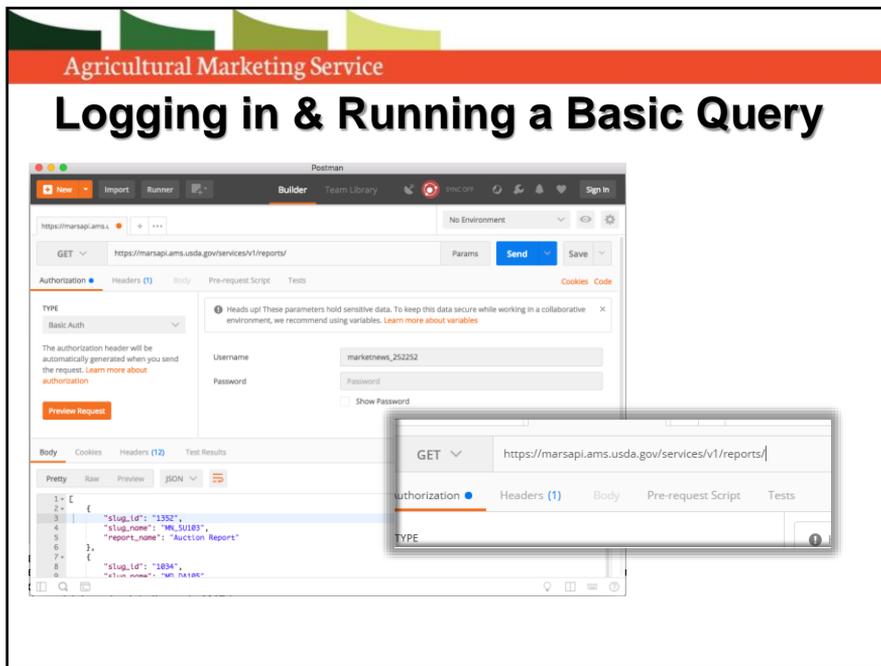
There are many different programs that are easily downloaded and available for free.

In this example, we use Postman.

To download Postman, we just went to their website and downloaded the program.

Again, there are other tools you can use but as a beginner to the API experience I have found this tool to be the best.

Postman Website – www.gopostman.com

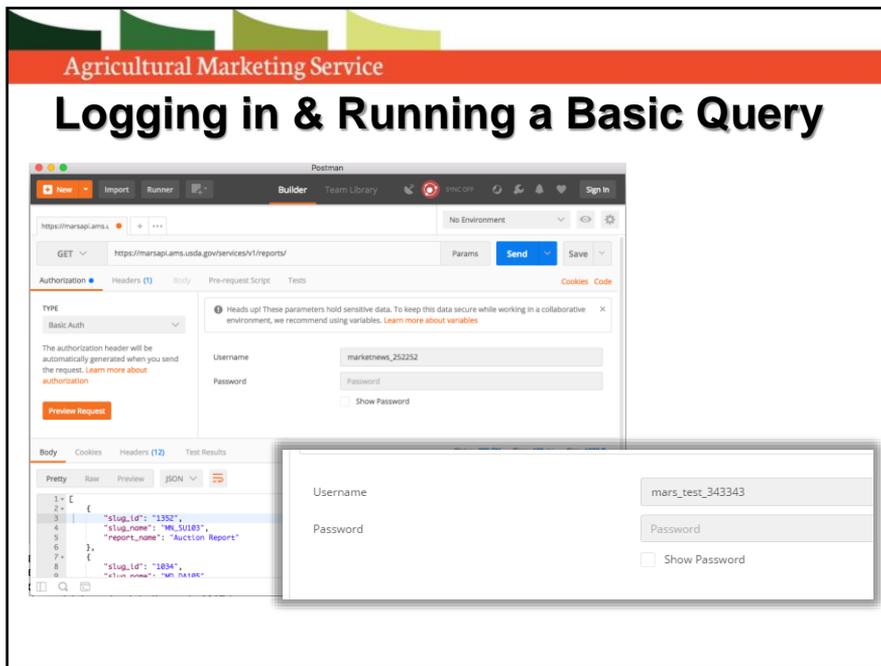


Now that Postman has been downloaded, lets walk through logging in and querying data.

In the GET bar at the top, we are going to put in some code so that we can see all the reports in MARS to start.

This code, along with other samples, is found on the API Help page in My Market News under the Examples tab.

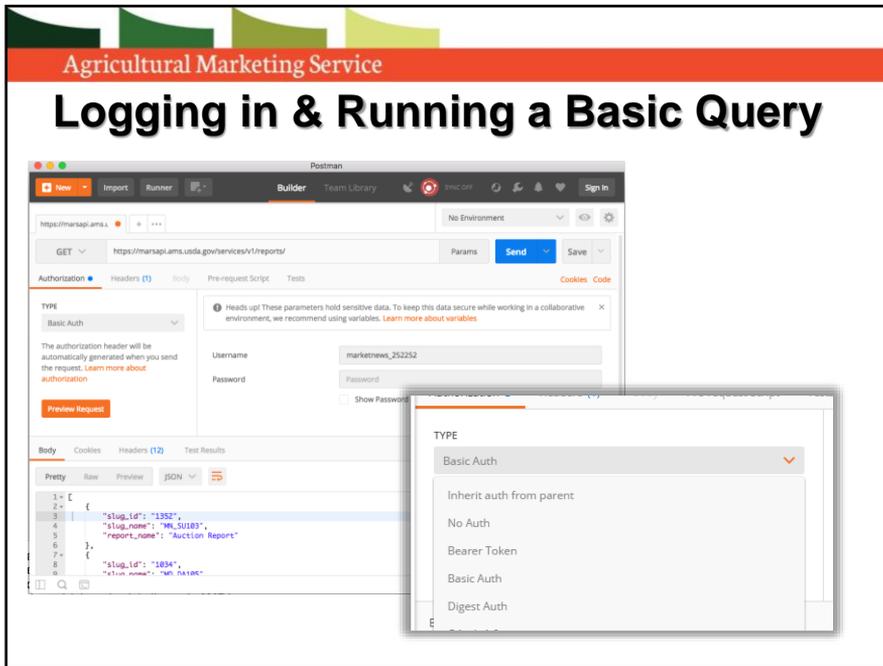
Copy and paste that code in the GET bar at the top of the screen.



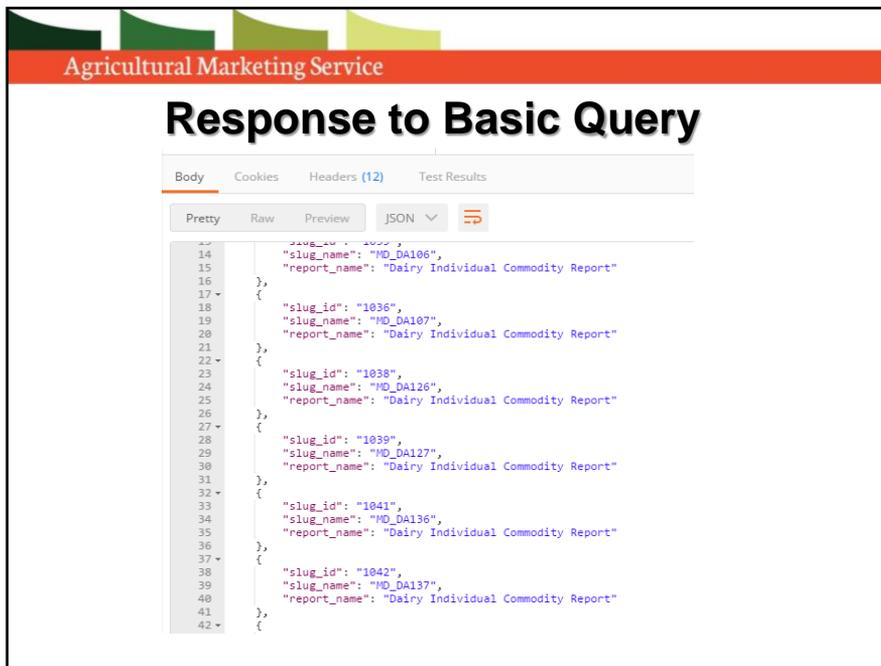
Next, copy and paste your API Key.

This is found on your profile in My Market News in the Username field.

Logging in & Running a Basic Query



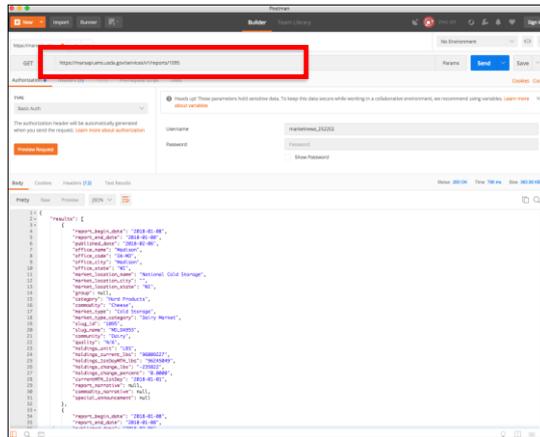
Select "Basic Auth" on the Type drop-down.



The long list of data that appears shows all the reports currently in MARS. This is similar to a Table of Contents or the menu in our restaurant example. Once you choose the report you would like to get data on, make note of the Report ID or Report Name.

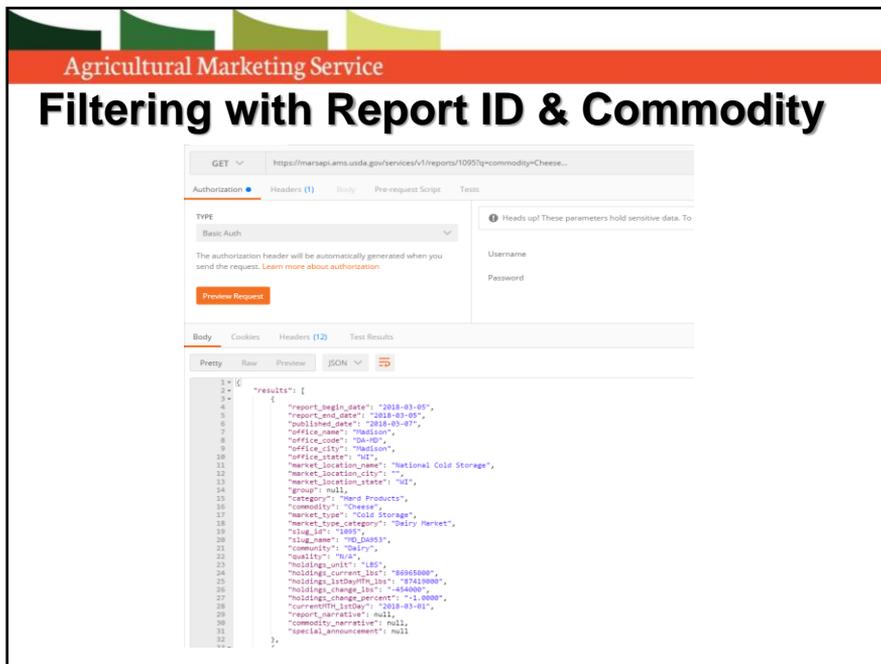
Now lets use the "Filter" option to filter the data so that we can look at a specific report.

Filtering with a Report ID



You can use the Report ID or Report Name.
The Report ID is consistent and will never change.
This is how we are going to query a specific report.

In this Postman screen shot example, the URL shows a Report ID 1095.
For reference the name of this report is the Cold Storage Weekly Report.
The system is pulling data for the report with Report ID 1095.



Now that we have pulled the 1095 report, lets say we want to take a closer look at all the cheese data within that report.

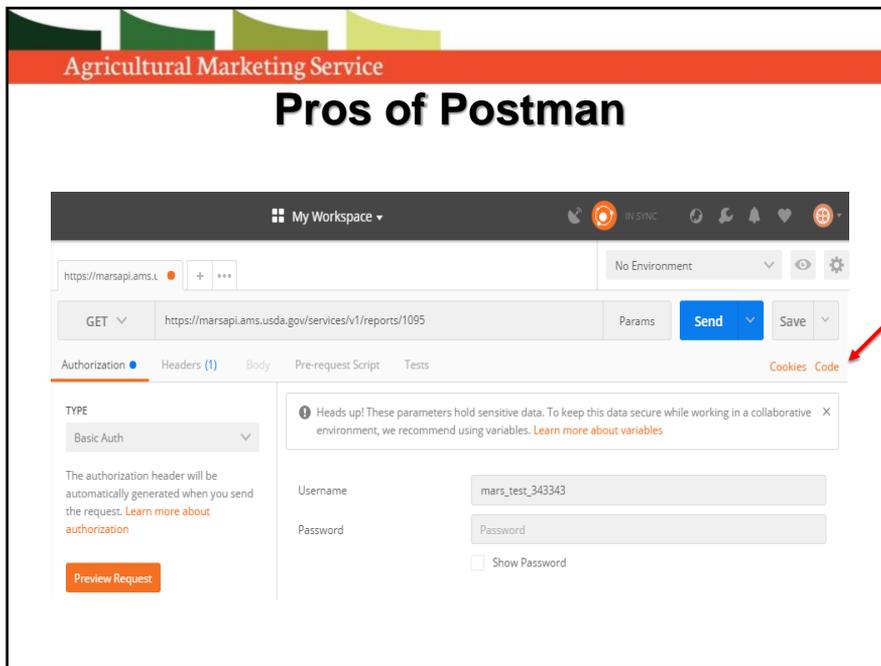
To do this we would type at the end of our code in the GET bar “q=commodity=Cheese”.

The “q” informs the API that the user is requesting the response to be filter.

In this example we are filtering by cheese.

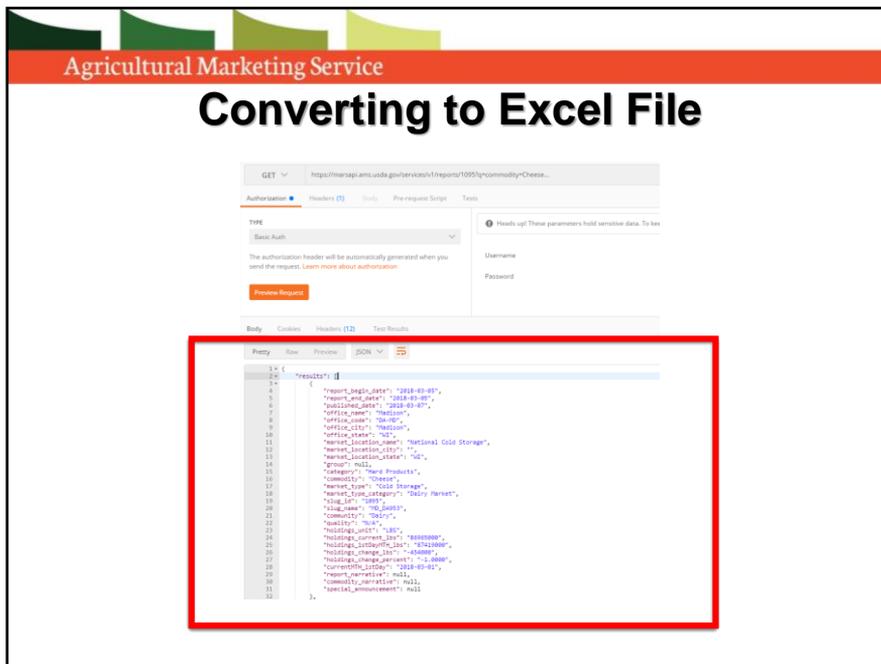
The MARS API Documentation provides instruction and examples detailing how to sort and/or filter your data.

These examples can be found on the Filtering page under the MARS API Documentation in My Market News.



Once the appropriate data is retrieved from the MARS API, you can use Postman to assemble code to pull this data into your application automatically.

Click on the “Code” link located in the top right of the screen.



We want to show you how to convert the results of the API to Excel by showing you an example.

Now that we have a data stream for all the cheese data in the 1095 report, lets move that code to Excel.

In Postman, click your cursor somewhere within the red box.

On your key board “ctrl + A” to highlight the entire data set, then “ctrl +C” to copy it.

Now we use a JSON to Excel converter that we also found on Google to put this data set into Excel.

We used www.json2csv.com

Converting to Excel File

commodity	market_type	market_type_category	slug_id	slug_name	community	quality	holdings_u	holdings_current_lbs	holdings_1	holdings_c	holdings_d
Cheese	Cold Storage	Dairy Market	1095	MD_DA95:Dairy	N/A	LBS	86965000	87419000	-454000	-1.00	
Cheese	Cold Storage	Dairy Market	1095	MD_DA95:Dairy	N/A	LBS	88099000	90105000	-2006000	-2.00	
Cheese	Cold Storage	Dairy Market	1095	MD_DA95:Dairy	N/A	LBS	89247000	90105000	-858000	-1.00	
Cheese	Cold Storage	Dairy Market	1095	MD_DA95:Dairy	N/A	LBS	90416478	96245049	-5828571	-6.00	
Cheese	Cold Storage	Dairy Market	1095	MD_DA95:Dairy	N/A	LBS	90416478	96245049	-5828571	-6.00	
Cheese	Cold Storage	Dairy Market	1095	MD_DA95:Dairy	N/A	LBS	92871723	96245049	-3373326	-4.00	
Cheese	Cold Storage	Dairy Market	1095	MD_DA95:Dairy	N/A	LBS	92871723	96245049	-3373326	-4.00	
Cheese	Cold Storage	Dairy Market	1095	MD_DA95:Dairy	N/A	LBS	94464576	96245049	-1780473	-2.00	
Cheese	Cold Storage	Dairy Market	1095	MD_DA95:Dairy	N/A	LBS	96009227	96245049	-235822	0.00	
Cheese	Cold Storage	Dairy Market	1095	MD_DA95:Dairy	N/A	LBS	96009227	96245049	-235822	0.00	
Cheese	Cold Storage	Dairy Market	1095	MD_DA95:Dairy	N/A	LBS	96225069				
Cheese	Cold Storage	Dairy Market	1095	MD_DA95:Dairy	N/A	LBS	96245049	96245049	0	0.00	

Once converted, this is what that dataset looks like in Excel.

Conclusion

- What is MARS - My Market News and what are its functionalities?
- Resources on My Market News for help
- Please contact us with any questions or concerns
- <https://mymarketnews.ams.usda.gov/mars-api>
- mars@ams.usda.gov

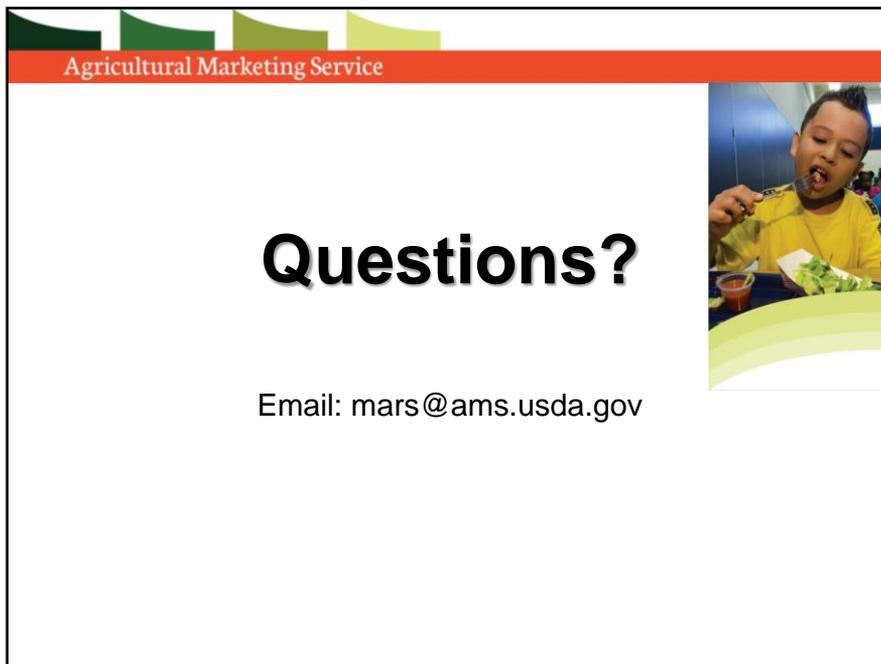
Hopefully this webinar has shown you the value of MARS, My Market News, and it's API.

With this API you can gather agricultural data with relative ease.

With very little effort, it could become your most important resource for agricultural market information.

For further resources and examples please visit
<https://mymarketnews.ams.usda.gov/mars-api>.

Please direct any questions or comments to mars@ams.usda.gov.



We have received several questions during this webinar.

I would like to address them now.

1.) When will all Market News information be available?

Great question. We are in the process of moving commodities over from the current system to MARS and should complete that process for all commodities by Spring 2019.

2.) What software did you use in your examples?

For the API usage example, we used Postman. For the JSON conversion example, we used the online tool at www.json2csv.com.

3.) What is the best way to sign up for/get report notifications?

Once logged in to MyMarketNews, you will see a "Subscribe" button at the bottom of any report access page under the "Easier Access" heading. Simply click this and you will begin receiving email notifications. Because you will be logged in via eAuthentication, the system will have your email address and will use that to register you to receive the requested content from GovDelivery.

4.) Can you search the data by commodity?

Reports by Commodity is one of the choices offered on the MyMarketNews homepage. When accessing report data via MyMarketNews or the MARS API, you are also able to filter by commodity. However, you cannot search a single commodity across reports at this time.

5.) Must I be logged in to use the API?

Not for each use. You do have to be logged in to receive an API Key which you will need when accessing the API, but getting that key is a one-time event.

6.) If there is a test key, then why should I register?

The test key is a temporary convenience while we are in development. It will be deleted and will thus cease to function at some point between now and Spring 2019.

7.) Do I need the software that you used to access the API?

No. You only need a web browser. The software we used is designed to help generate code to allow another program to get data from MARS automatically, but it is not required.

8.) What will happen to the Portal or Datamart?

MARS will eventually supplant the MNSD Portal and become the main software for collection and dissemination in AMS. The exact timeline on when the Portal will cease operating has not yet been decided. While mandatory data will eventually be available in MARS and through its API, there are currently no plans to cease operations of Data Mart web service.

9.) Is the API the only way to get data?

No. Data can also be accessed directly on the MyMarketNews website at mymarketnews.ams.usda.gov.

10.) Why did USDA Market News decide to create an API?

The Secretary of Agriculture and the USDA in general have embraced the concept of Open Data. Part of that initiative is making data here at the USDA open to the public in as basic a form and with as direct a method as possible.

11.) I've already been on the API and had some issues filtering and sorting by published date. Why is this happening?

As new commodities are added to MARS over the next year, they will also begin appearing in MyMarketNews and the MARS API. This time of development will naturally be accompanied by some issues and inconveniences. Please feel free to contact us at mars@ams.usda.gov at any time with any questions or concerns. We are constantly working to improve this new architecture.

12.) Does AMS limit the number of queries a user can have in a given timeframe?

No. It is true that the number of rows is limited in the call back unless the user is a "level 2". Once you have registered with eAuthentication, you can apply for this level of security.

13.) Are dairy data the only thing on MARS right now?

Great Question. Dairy is the only commodity online at the moment. Livestock, Poultry, and Grain will be online in the fall and Specialty Crops will come on in Spring 2019.

14.) Will this impact MRP Data Mart?

The data in Data Mart is being replicated to the MARS framework and will eventually be available there. However, there are no immediate plans to retire Data Mart or its web service.

15.) Will AMS release the data into similar "buckets" as the reports? For example, prices in 50 lb. weight categories for feeder cattle prices?

Yes. Those reports are split up by weight category, so the data is displayed on the report together and is split up by weight breaks.

16.) What is the delay between a report posting and being available in the API?

That delay is caused by generating the data through MARS into the API (and also by the need to synchronize the dissemination of the data across multiple outlets). There is a little bit of lag time. We are working through this process to make it a little more seamless and a little more easier. In the meantime, that is just how it is working.

17.) Will AMS release a user manual for API for the info you just demonstrated?

We will be releasing many materials. Right now, there are instructions on the My Market News website on how to use API. Also, there is a webinar that was done previously. This webinar will also be posted and will have the wording to it as well.

18.) Will there be new data points collected for the fruit and vegetable industry and will transportation data be available via MARS?

The answer to both questions is yes. As far as new data points, it mostly comes from elevating the different data types that in the past have been consider varieties or sub-varieties. Some of those are being elevated to be their own commodities. Berries is a good example. So further data points will have to be gathered to make that possible. As for transportation data, there is a specific market type for that.

19.) Can MARS be tested before it goes live?

The answer is MARS already is live. There is a production environment and pre-production environment. Production is live and obviously you can take a look at it now. As for pre-production, that is usually tested internally but it may be made

available to the public once we reach a certain threshold.