



**Agriculture  
and Markets**

# Heavy Metal in Spices – A NY Approach

Central Atlantic States Association  
of Food and Drug Officials  
April 2022

Kathy Hochul  
*Governor*

Richard A. Ball  
*Commissioner*

Dan McCarthy  
*Director – Food Safety  
and Inspection*

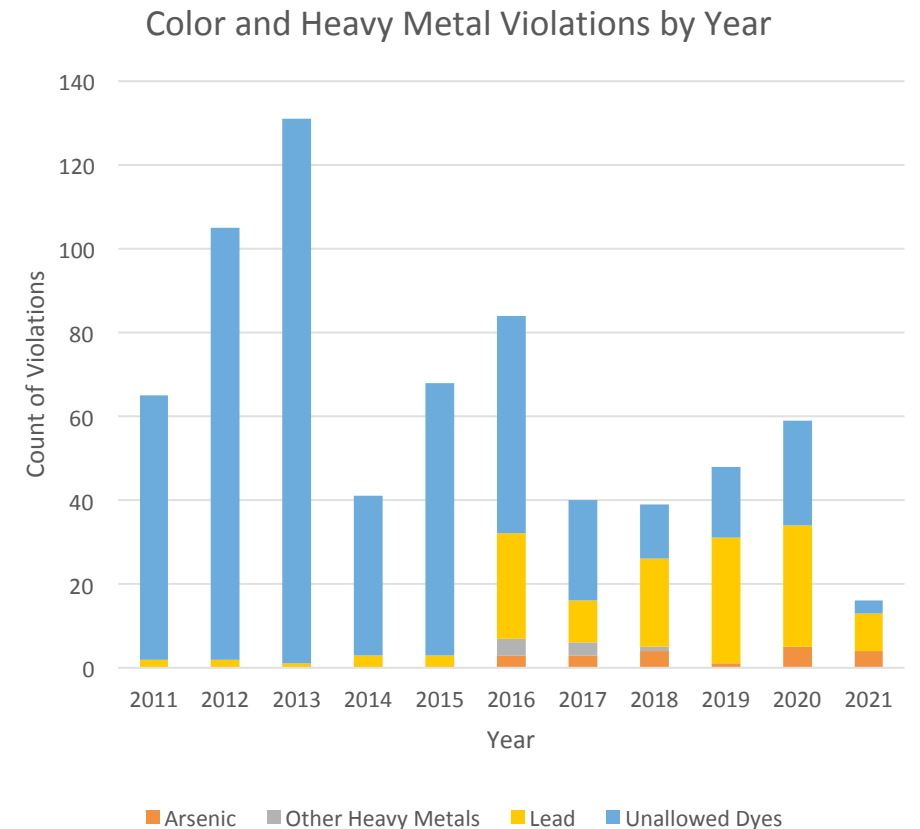
# Background

- The New York State Department of Agriculture and Markets (NYSAGM) Division of Food Safety and Inspection is responsible for the safety of food manufactured and sold in New York State.
- That responsibility covers the routine inspection of food, retail, storage and distribution food facilities, as well as the routine sampling of food to check for chemical, physical or biological contamination.
- If contamination or “adulterants” are found, the Department recalls, destroys and/or removes such products from commerce.



# Background

- Over the past 10 years, through the Department's routine food surveillance program, Food Laboratory analysts noticed an increase in the number of spices containing non-food-grade dyes.
- Such non-food-grade dyes were found to contain lead and chromium pigments.
- As a result of these findings, the Department began to target the collection and analysis of spice samples for heavy metals.



# Background

- There are no federal action levels for heavy metals in spices.
- In 2016, using results from a devised targeted sampling plan, the Department instituted a State Class II action level of 1 ppm for Inorganic Arsenic, Cadmium and Lead and a State Class I action level of 25 ppm for Lead in spices.



# Background: Recall Classifications

- **Class I Recall:** Dangerous or defective products that predictably could cause serious health problems or death.
- **Class II Recall:** Products that might cause a temporary health problem or pose only a slight threat of a serious nature.



# Background

While the State action levels have resulted in the recall of over 100 spices, a health-based assessment of heavy metals in spices was needed to ensure the appropriate action levels were protecting the people of NY state from this potential source of heavy metal exposure.

# Background

In 2018, NYSAGM and the New York State Department of Health's Bureau of Toxic Substance Assessment (NYSDOH-BTSA) formed an interagency collaboration to determine actionable limits of contaminants commonly found in spices, particularly heavy metals.

# AGM – DOH Interagency Collaboration

## Focus areas:

- Through this collaboration, we reviewed laboratory surveillance data, as well as toxicity data and spice consumption rates to identify which heavy metals were commonly found and, of those, which pose a risk to human health;
  - Inorganic Arsenic, Cadmium and Lead were determined to be the heavy metals of concern.



# AGM – DOH Interagency Outcome

- NYSDOH-BTSA performed oral exposure and toxicological assessments to derive health-based guidance values for Inorganic Arsenic, Cadmium, and Lead in spices used in food preparation.
- Informed by these assessments and sampling data on concentration of heavy metals in spices, NYSAGM will lower the State's Class II action levels for Lead, Inorganic Arsenic and Cadmium by a factor of almost 5 times.



# Action Levels for Heavy Metals

New York is the first State in the nation to establish action levels for heavy metals in spices providing better protection to New York State consumers

Analyte	Class II Recall Action Level
Lead (Pb)	➤ 0.21 ppm
Cadmium (Cd)	➤ 0.26 ppm
Inorganic Arsenic(As)	➤ 0.21 ppm

New York State *Updated* Recall Policy for Heavy Metals in Spices (effective TBD)

# Class II Recall Action Levels

**Lead:** Class II recall action level selected is based on the NYSDOH derivation of a noncancer health-based guidance value for Lead in spices used in food preparation. It is important to recognize that this assessment differs from other noncancer assessments because of the absence of a threshold for the effects of Lead on the developing central nervous system of children. While the health-based guidance value is based on health protective methods and assumptions, the absence of a threshold means that we cannot assume that exposure below the health-based guidance value is without risk as we would for other noncancer health-based guidance values. Due to absence of a threshold for the noncancer health effects of Lead, and the presence of many other potential sources of exposure to Lead (e.g. soil, indoor dust, water), it is prudent to reduce risks for Lead exposure through consumption of spices by adopting screening or action levels as low as achievable.



# Class II Recall Action Levels

## Lead (Cont.):

Based on feedback we received, we have been working with our partners at NYSDOH to build out the dataset we have on spices, focusing specifically on spices commonly consumed by children.

Once that dataset is built, we plan to host an additional webinar to share a more specific implementation strategy and timeline with you all.



# Class II Recall Action Levels

## Lead (Cont.):

Below are the spices that have been identified as commonly consumed by children:  
Most Ingested to Least w/Phase

### Phase 1

Sesame, seed  
Pepper, nonbell, dried  
Parsley, dried leaves  
Dill, seed  
Spices, other  
Marjoram  
Basil, dried leaves  
Savory

### Phase 2

Cinnamon  
Turmeric  
Pepper, bell, dried  
Pepper, black and white  
Ginger, dried  
Coriander, seed  
Chive, dried leaves  
Peppermint



# Class II Recall Action Levels

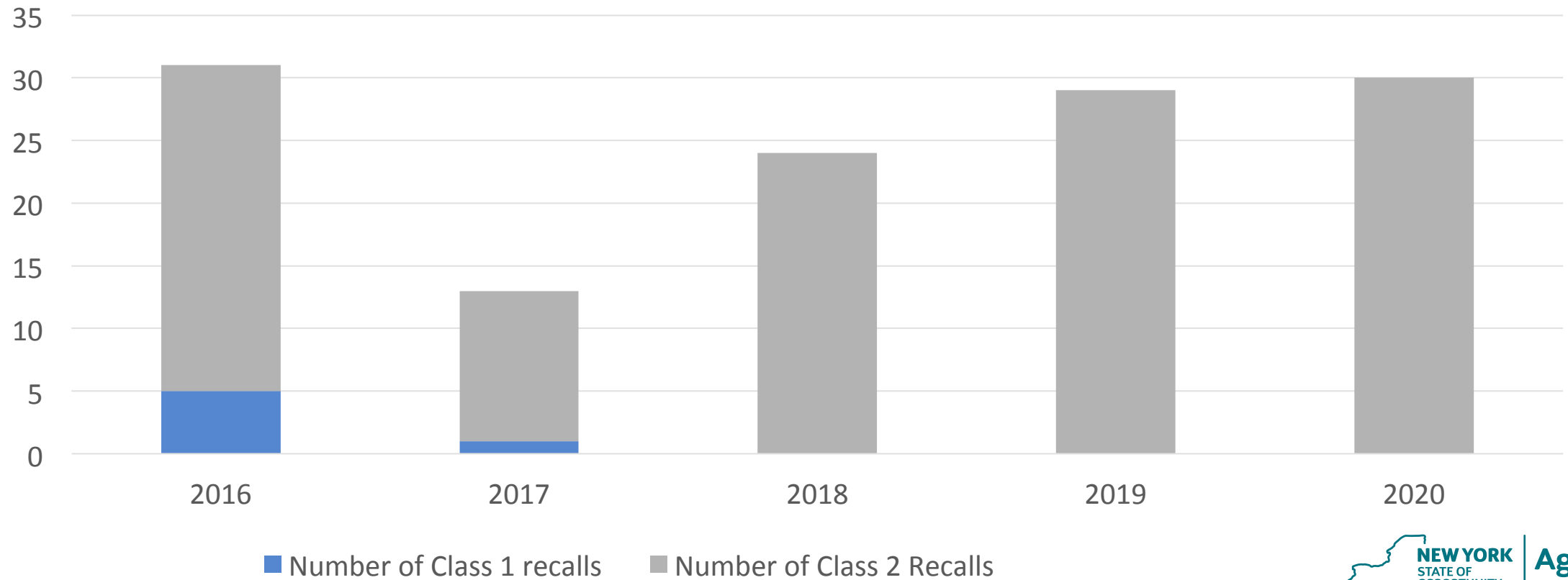
**Cadmium**: Class II recall action level is based on the 90th percentile of Cadmium concentrations detected in sampled spice products, which was used as a surrogate for background Cadmium concentrations found in spices and is also set as close as feasible to the health-based values for Cadmium in spices.

# Class II Recall Action Levels

**Inorganic Arsenic**: Class II recall action level is based on the 90th percentile of Inorganic Arsenic concentrations detected in sampled spice products, which was used as a surrogate for background inorganic arsenic concentrations found in spices and is also set as close as feasible to the health-based values for Inorganic Arsenic in spices.

# Spice Samples Violative for Lead

Number of Recalls per year by Class





# Updated Recall Policy Implementation

- In order to successfully implement the State's update recall policy and subsequent enforcement activities, NYSAGM will use a phased approach. This period will commence after a further analysis of data to support an implementation strategy for spices commonly ingested by children.
- The scientific basis for these thresholds were published in a peer reviewed scientific journal. <https://journals.tdl.org/regsci/index.php/regsci/article/view/149/256>
- Currently, NYSAGM has a Class II recall action level of 1 ppm for Pb, that was put into place in 2016.
- As part of the State's implementation strategy NYSAGM will monitor and document violations of the new Class II recall action level policy (e.g. >0.21 ppm Pb) by sending **warning letters** to those responsible for the violation (unless actionable under the current Class II recall action level, i.e.  $Pb \geq 1$  ppm).
- This approach will afford importers, distributors, co-packers, manufacturers of spices and retailers the opportunity to implement additional controls that may be needed to comply with the new Class II recall action levels in the future.



# Stakeholder Input

- NYSAGM also intends to work closely with retailers, importers, wholesalers, manufacturers (spice manufacturers and those using spices as ingredients in their finished products), and any other relevant industry partners during the implementation period.
- It will engage in various forms of comprehensive outreach and education sessions by speaking at national and regional food safety conferences, hosting in-person meetings, and providing those affected by this change various forms of written communication to ensure they are aware of this change.



# Protecting Public Health

- NYSAGM's goal is to ensure that all stakeholders affected by this updated policy are adequately prepared once the change becomes effective, while ensuring that the implementation of this updated recall policy efficaciously protects public health.
- For this project to have a broad impact, NYSAGM will share this information with state departments of health and agriculture, the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) to serve as a national model for appropriate action concerning spices contaminated with heavy metals.



# Questions?

**Website:** <https://agriculture.ny.gov/food-safety>

**Email:** [FSIWebInquiries@agriculture.ny.gov](mailto:FSIWebInquiries@agriculture.ny.gov)

Thank you!