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IFPTI Fellowship Cohort VIII: Research Presentation

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A Retrospective Study of the Farm Use of Insecticides Containing Piperonyl Butoxide Prior to Violative Residue Levels Detected in Livestock Carcasses Sampled for the Fiscal Years 2017-2019 FSIS National Residue Program

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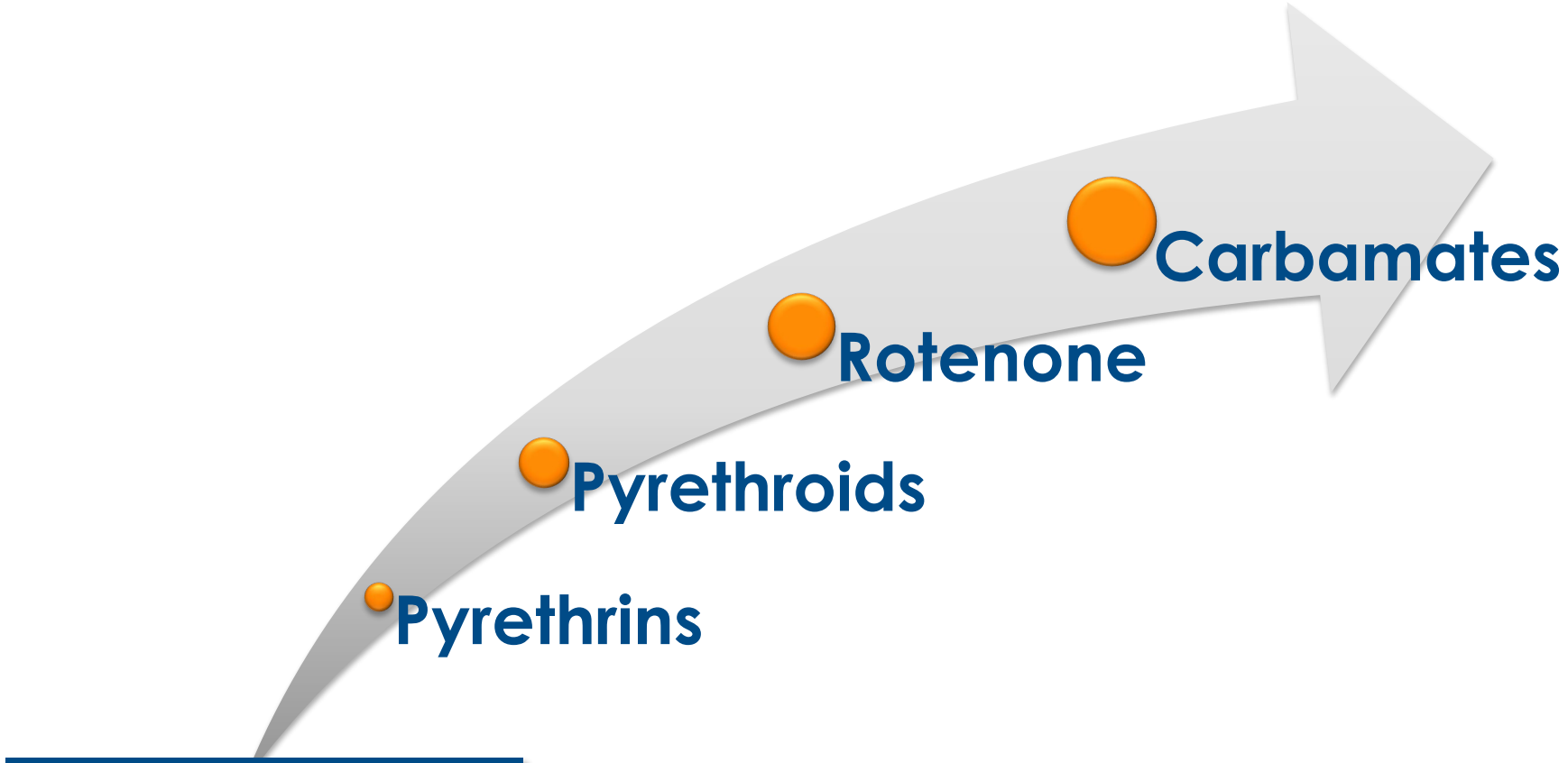
Background

Background



Background

Food Safety Inspection Service National Residue Program Fiscal Year	Number of Piperonyl Butoxide Violative Residues
2017	4 [1]
2018	8 [2]
2019	2 [3]

Background

Problem Statement

Factors contributing to violative piperonyl butoxide residues in livestock carcasses from the 2017-2019 National Residue Testing Program have not been studied extensively.

Research Questions

1. What is the background of the animals that tested positive for piperonyl butoxide?
2. What was the route of piperonyl butoxide exposure to livestock?
3. What is the level of producer knowledge about insecticide use on livestock farms?

Methodology

FOIA request for residue information

Contacted slaughter establishments and conducted telephone interviews with livestock producers

Analyzed information and reported qualitative data

Study Population

Livestock producers who had carcasses that had violative piperonyl butoxide residue levels detected in federal and state establishments for FY 2017 through FY 2019

and

the associated slaughter establishments

Study Population

- 8 livestock owners participated in a telephone interview
  - 1 meat processing plant purchased the animal from a local naturally-raised livestock producer and was identified as the livestock owner

- 7 establishments from 5 states provided background information

Results

4 of the 7 establishments interviewed stated that they retrospectively questioned if the piperonyl butoxide exposure occurred at their slaughter establishment

Results

- 1 establishment owner assumed responsibility for the residue
  - determined that the contamination was the result of poor employee handwashing between handling skinned carcass and touching the hide after the insecticide was applied in the livestock pens the morning of slaughter
- 1 establishment later suspected inspection team caused contamination due to atypical sample handling

Results

Piperonyl Butoxide Awareness

- All individuals interviewed stated that they were not aware that piperonyl butoxide was considered to be a chemical risk for meat residues prior to the violative tolerance levels

- Only 1 livestock producer recognized that piperonyl butoxide was a chemical component of insecticides

Results

Financial Impact

- 7 out of 8 livestock owners financially lost money because of the positive residue
  - individual animal values estimated to range between $500.00 - $2500.00
  - Additionally, meat establishments also suffered from loss of time spent and financial income from being unable to further process the condemned carcass into meat cuts

Results

Insecticides Containing Piperonyl Butoxide Identified by Farm/Meat Establishments

- Country Vet Metered Insecticide Fly Spray*
- Durvet Dairy Bomb 55Z
- ProZap CT-75 Aerosol Insecticide*
- ProZap Insectrin CS Pour-On
- ProZap LD-44Z*
- Repel X Equine Fly Spray

***identified by more than one livestock producer or meat establishment**

Aerosolized insecticide sprays were the most commonly mentioned product type

Insecticide Traceback

Only 3 livestock owners were able to potentially link a pesticide product to the violative residue:

- **ProZap CT-75 aerosol insecticide** that was used at the slaughter establishment
- **ProZap Insectrin CS pour-on** applied to the back of the animal approximately four weeks prior by the livestock producer
- **Repel X equine fly spray** applied by a family member of the livestock producer the night before the animal was delivered to the slaughter establishment

Conclusions

Piperonyl butoxide is commonly unknown to be a risk for meat residues

AND

the identified insecticides[1] did not contain a withdrawal label or residue warning to alert the residue potential

[1] Repel X equine fly spray was the only insecticide that did not have a food animal label

Recommendations

1. Withdrawal times and residue warning statements should prominently alert the residue potential
2. Further investigation to determine if meat processing establishments are a definitive source of accidental contamination
3. Lab testing to determine if the residue is a surface contaminant or within the muscle fiber to determine if corrective actions can be performed
4. Development of a carcass-side strip test

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Questions?

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