

2ND ARIZONA STATEWIDE TRIBAL, IHS, AZDHS, CDC RMSF MEETING

ENVIRONMENTAL TICK CONTROL AND SURVEILLANCE COMMITTEE

*Development of programs for tick surveillance, risk
assessment, and best practices on tick control*

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RMSF RISK ASSESSMENT, MANAGEMENT & CONTROL PROCESS

Environmental Tick Control and Surveillance



Risk Assessment

- Conduct home assessment
- Tool: Assessment Form



Risk Management

- Make RMSF and tick control decisions based on assessment
- Tool: Decision Flowchart



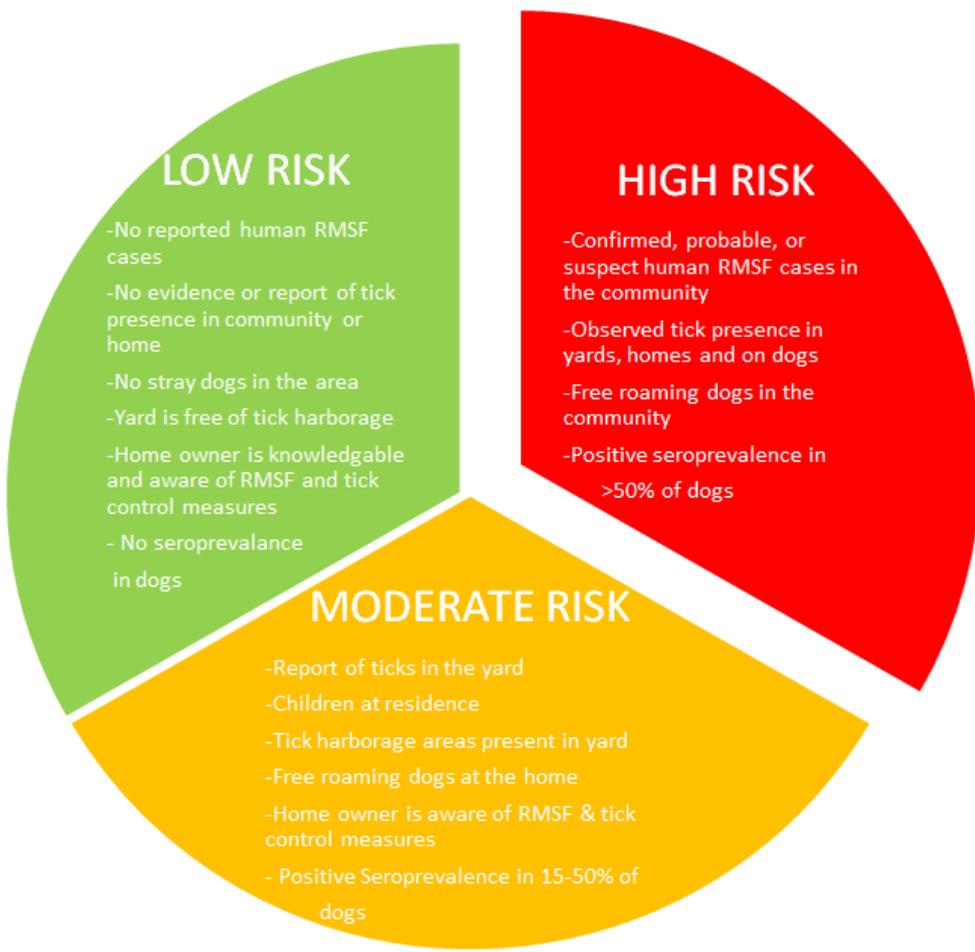
Risk Control

- Implement an effective RMSF and tick control plan
- Tool: Control Guidance



RISK MANAGEMENT: DECISION MAKING

Environmental Tick Control and Surveillance



Low Risk = Response may be focused on one specific finding from the risk assessment

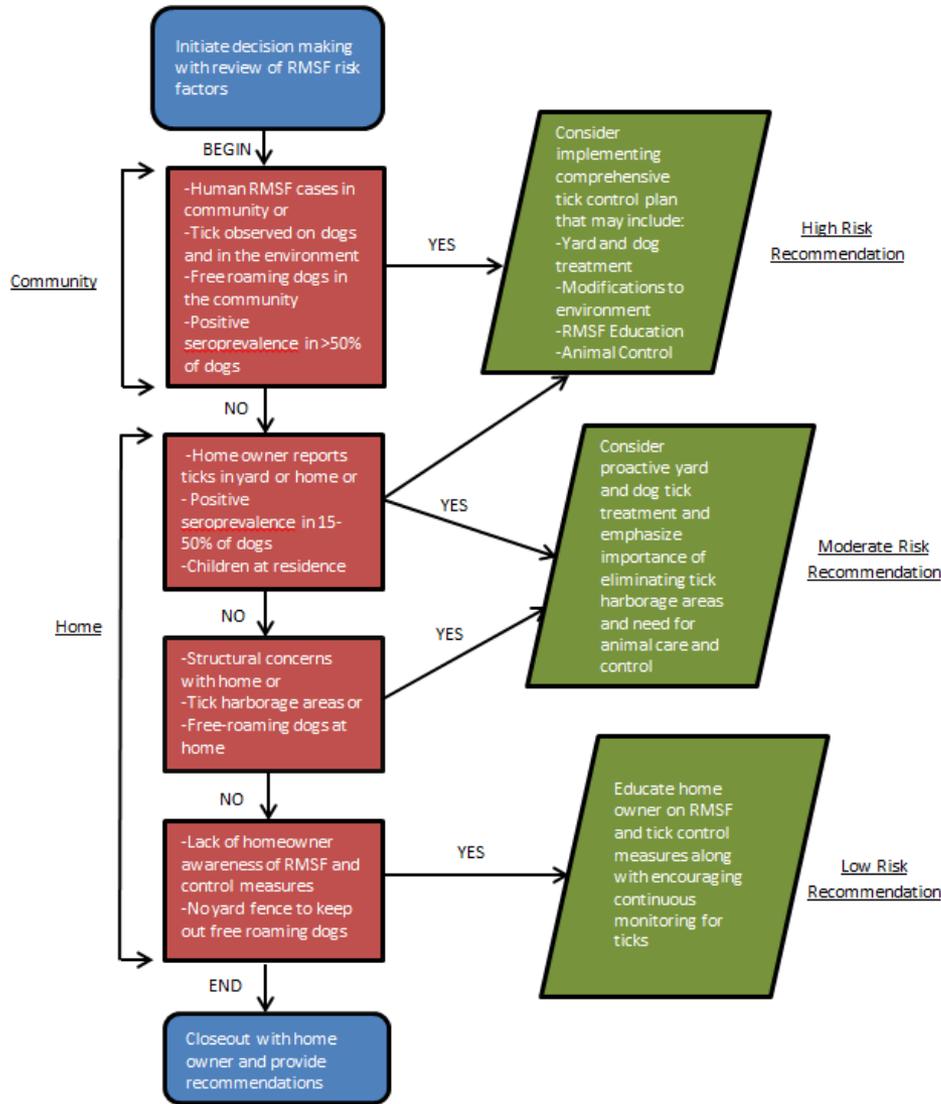
Moderate Risk = Response may include several interventions

High Risk = Response should be broad and comprehensive



RISK MANAGEMENT: DECISION MAKING

Environmental Tick Control and Surveillance



Framework for interpreting assessment results and making recommendations for appropriate controls



SURVEILLANCE STRATEGIES

Environmental Tick Control and Surveillance



Canine Tick Load



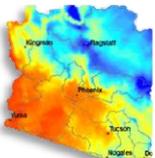
Environmental Tick Load



Canine Seroprevalence



Tick Rickettsial Prevalence



Climate Considerations

CANINE TICK LOAD

Environmental Tick Control and Surveillance

CONSIDERATIONS

- Possible Indicator of community-wide tick problem
- Possible indicator of a tick problem on a specific property
- Provides a baseline to measure interventions
- Can be used in combination with other factors to determine risk

METHODS & RESOURCES

- Observational method
- Consider representative sample of communities
- Determine proper sample size
- Consider seasonal differences
- Consider gathering additional information (e.g. presence of tick collar)

LIMITATIONS

- Treated /protected dogs may affect results of survey
- Temperature and seasonal differences



ENVIRONMENTAL TICK LOAD

Environmental Tick Control and Surveillance



CONSIDERATIONS

- Carbon Dioxide Tick Trap
- Drags and flagging (do not work well for the Brown Dog Tick)
- Environmental Assessment/Inspection

METHODS & RESOURCES

- Dry ice emits carbon dioxide and attracts ticks
- Ticks are gathered on flannel cloth
- Provides estimates of tick load
- Observation of ticks in the environment - Environmental Assessment Forms

LIMITATIONS

- Limited laboratory capacity for counts and species identification
- Results variable depending on weather conditions (wind, rain) and seasonal differences
- Availability of dry ice

CANINE SEROPREVALENCE

Environmental Tick Control and Surveillance

CONSIDERATIONS

- Baseline, Investigative, Evaluative Measures
- Conducted by Veterinarians and Veterinarian Technicians
- No rapid clinical test available
- Laboratory analysis required

METHODS & RESOURCES

- Consider age of dog when developing strategy
- Frequency of sampling depends on use of data
- Veterinarian/Vet Tech

LIMITATIONS

- Laboratory capacity
- Limited funding
- Requires specific expertise (Veterinarian/Vet Tech)



TICK RICKETTSIAL PREVALENCE

Environmental Tick Control and Surveillance



CONSIDERATIONS

- Testing ticks to determine infectivity
- Typically used in specific outbreak or case investigations

METHODS & RESOURCES

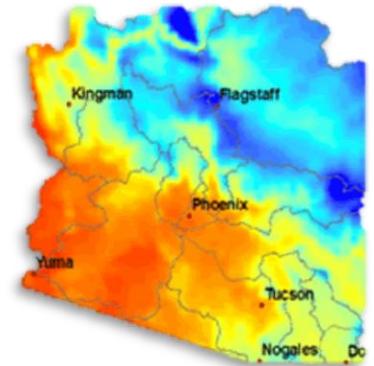
- Collected from dogs and or tick traps
- Requires laboratory analysis
- Canine seroprevalence is more commonly used to determine RMSF activity

LIMITATIONS

- Funding
- Laboratory capacity
- May require a large number of tick samples

CLIMATE CONSIDERATIONS

Environmental Tick Control and Surveillance



CONSIDERATIONS

- Monitoring climate trends to understand changes in tick populations
- Monitoring weather conditions to predict tick activity

METHODS & RESOURCES

- Requires monitoring of trends in climate over long periods of time
- Local weather data
- Can be used in combination with field observation and or complaints
- Can help determine most effective times of control activities

LIMITATIONS

- May require local weather station
- Dedicated staff and expertise

CONTROL MEASURES

Environmental Tick Control and Surveillance



Integrated Pest Management



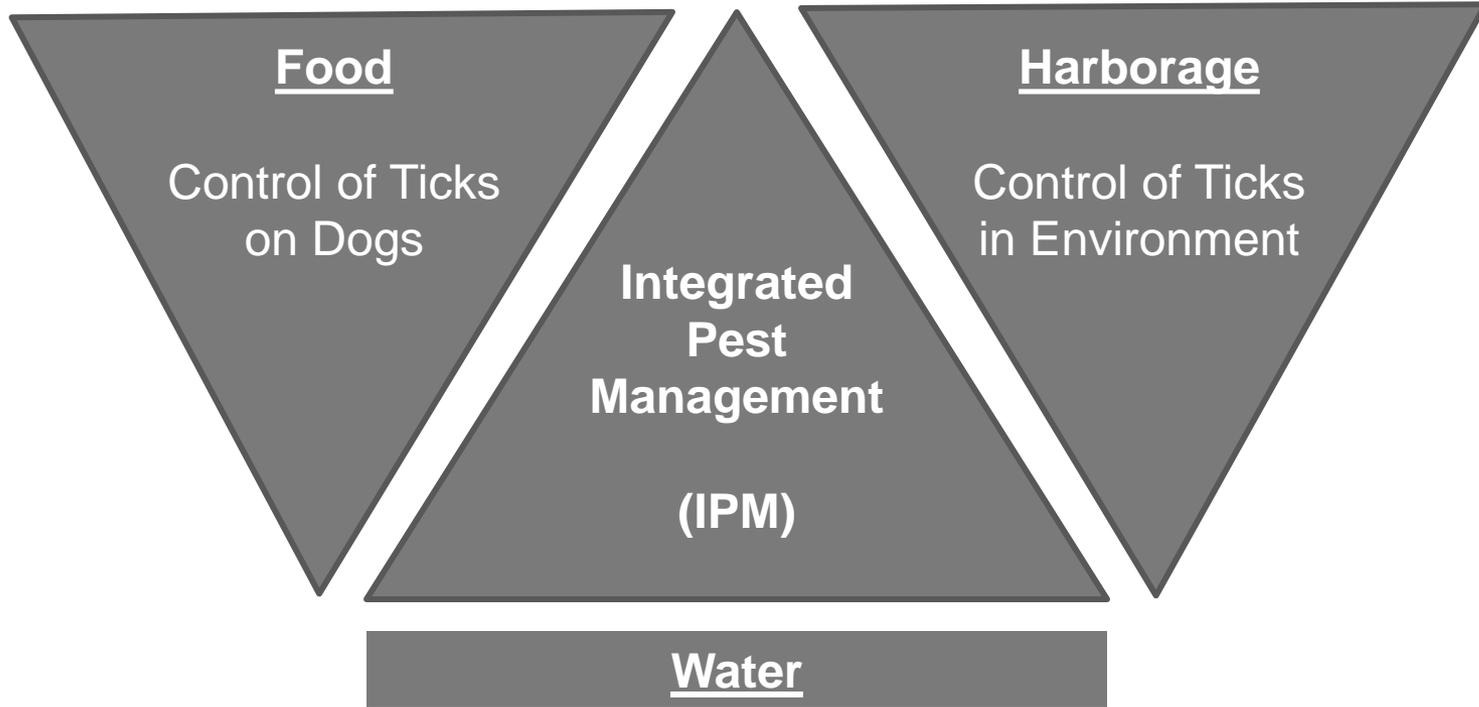
Product Selection and Cost



Estimated Labor Costs

INTEGRATED PEST MANAGEMENT

Environmental Tick Control And Surveillance



- 1) Ideally, individuals take responsibility for tick control on their dogs and homes
- 2) Out of necessity, Gov. programs providing tick treatment



INTEGRATED PEST MANAGEMENT

Environmental Tick Control And Surveillance

A) Dogs need year round protection from ticks

Ticks feed and breed on dogs. That's when we can get 'em!

B) Reduce Tick Habitat

Outdoors: Remove vegetation and solid waste. Routinely inspect dog housing. **Indoors:** general sanitation, clutter removal, routine dog bed laundering

C) Pesticide application



PRODUCT SELECTION AND COST

Environmental Tick Control And Surveillance

Product and Cost variables

- | | |
|-------------------------------|----------------|
| a. Application equipment cost | e. Travel Time |
| b. Pesticide Cost | f. Manpower |
| c. Application rate | g. Training |
| d. Residual | h. Efficacy |

Product cost (excluding staff & capital) = [product cost per dog] x [number of dogs to be treated] x [number of treatments needed per year]

Tick Collar Examples:

(A) Propoxur collar \$3.50 each x 2,600 dogs x 4 treatments per year = \$36,400. Providing collars door-to-door would require visiting 1,105 homes four times per year. Estimate 1 FTE with vehicle visiting 40 homes per day for 110 work days, or nearly 6 months

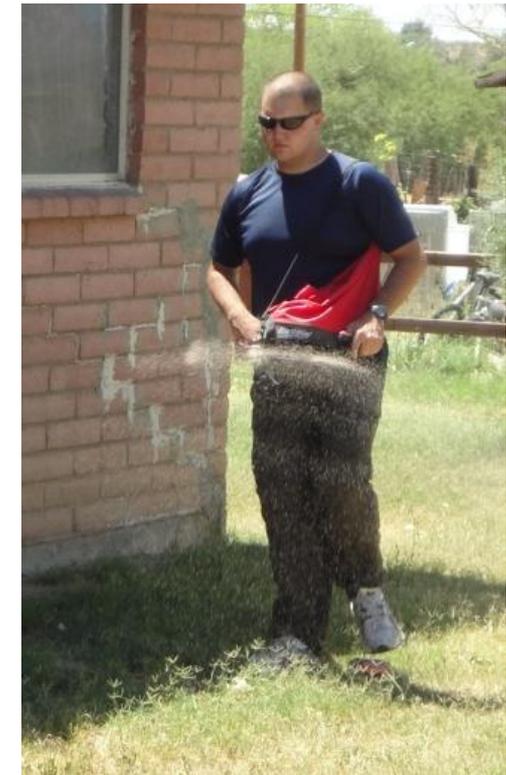
(B) Switch to \$40 collar lasting 8 months = \$156,000 and 1 FTE visiting 40 homes/day for 41 days



ESTIMATED LABOR REQUIREMENTS

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Pesticide application method	Estimated number homes treated per team per day
Granules – seed spreader	45
Liquid – RTS hose attachment	18
Liquid – hand pump sprayer	30
ATV mounted sprayer	55
Pickup mounted sprayer	35



TAKE HOME MESSAGES

Environmental Tick Control And Surveillance

Risk Assessment

- Assessing RMSF risk is essential to determining and implementing appropriate and effective tick control measures.

Surveillance Strategies

- Surveillance can provide measurement and direction for prevention efforts.

Control Measures

- By following IPM principles, tick control measures are most effective when custom tailored to your specific environmental conditions.

Q & A

THANK YOU