PREPARING FOR TICK SEASON

Hayley D. Yaglom, MS, MPH
RMSF Epidemiologist
Hayley.Yaglom@azdhs.gov
February 4, 2015
RMSF VECTOR IN ARIZONA

Brown dog tick

*Rhipicephalus sanguineus*
TICK OVERVIEW

- Peridomestic species
- Thrives in hot climates
- Needs 3 feedings to complete life cycle
- Dogs are primary food source for all life stages
- Loves to crawl and hide in small cracks and crevices inside, alongside horses, under porches, trash piles, and furniture outside
- Females lay thousands of eggs
- Infected female can lay infected eggs
R. SANGUINEUS LIFE CYCLE

Life cycle of *Rhipicephalus sanguineus* and the transmission of *Rickettsia rickettsii* (the causative agent of Rocky Mountain Spotted Fever)

1. Adult females drop off host to lay eggs
2. Eggs hatch into six-legged larvae
3. Larvae feed on first host and may acquire *R. rickettsii*
4. Larvae molt into nymphs after leaving first host
5. Nymphs feed on second host and may acquire *R. rickettsii*
6. Nymphs molt into adults after leaving second host
7. Adults attach to the third host for feeding and mating, and may acquire *R. rickettsii*

Infected adults may feed on humans and transmit *R. rickettsii*

The possibility exists for transmission from larvae (infected transovarially) to humans but requires further investigation.

Nymphs may feed on humans and transmit *R. rickettsii*

Images are not drawn to scale. *R. sanguineus* can maintain *R. rickettsii* between life stages. Humans, as well as dogs, may become infected when bitten by a tick infected with *R. rickettsii*.
RECOMMENDATIONS

- Develop community action plan (before tick season begins) with partners to address RMSF prevention for your area with specific timeline for upcoming season

- Conduct outreach and educational campaigns early and often.
  - Try to reach new groups in new ways!

Naomi Drexler, MPH
Rickettsial Branch
Centers for Disease Control & Prevention
RECOMMENDATIONS

▶ Begin interventions early

▶ Collaring of dogs should occur when you start to see the first hatching of ticks in your area (March-May for most reservations).
▶ Environmental pesticide can be applied at the same time, or soon after collaring and should be repeated on a month basis.

▶ Monitor tick levels throughout the year

▶ Perform checks monthly, or every two months to make sure dogs still have collars on and that tick levels on dogs and in yards are being controlled.
▶ Keep records of your numbers for comparison and to track your efforts

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RECOMMENDATIONS

Choosing the best pesticide and tick collar can be a challenge and must address local resources (human and financial), environmental restrictions, available equipment, certification requirements, safety as well as active ingredients.

- Active ingredients for collars most effective for brown dog tick: Amitraz, imidachloprid/flumethrin, and propoxur (see note on propoxur safety).
- Active ingredients for environmental pesticides: Permethrin, bifenthrin, cypermethrin, deltamethrin, cyfluthrin, lamda cyhalothrin

Naomi Drexler, MPH
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## Summary of Tick Collar Information

<table>
<thead>
<tr>
<th>Active chemical(s)</th>
<th>Brand names</th>
<th>Cost per collar</th>
<th>How long until active?</th>
<th>Length of activity</th>
<th>Mechanism</th>
<th>Safety information</th>
<th>Other notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitraz or Amitraz-pyriproxyfen</td>
<td>Preventics</td>
<td>$10-20</td>
<td>24-48 hrs</td>
<td>Up to 3 months</td>
<td>Detaches and kills ticks</td>
<td>Do not open until ready to use. Do not allow children to play with/ handle product. Harmful if absorbed through the skin. Causes moderate skin and eye irritation. Wash hands with soap and water after handling.</td>
<td>Effective against the Brown dog tick, not effective treatment of fleas, use caution when combining with flea treatment, possible human carcinogen</td>
</tr>
<tr>
<td>Imidacloprid and Flumethrin</td>
<td>Seresto</td>
<td>~$75</td>
<td>Up to 48 hrs</td>
<td>Up to 8 months</td>
<td>Kills fleas and ticks</td>
<td>Do not open until ready to use. Do not let children play with this collar or to put them in their mouths. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and cold water after fitting the collar.</td>
<td>Effective against Brown dog tick, long lasting, water resistant</td>
</tr>
<tr>
<td>Propoxur/methoprene/phenothrin</td>
<td>Adams plus, Bio Spot, Seargent’s, PowerBrand</td>
<td>$5-15</td>
<td>Up to 3 months</td>
<td></td>
<td>Kills adult fleas and ticks, controls flea development</td>
<td>Do not open until ready to use. Do not get dust in mouth. Harmful if absorbed through skin or swallowed. Wash hands thoroughly with soap and water after handeling. Rinse immediately if on skin or clothing. Do not allow children to play with collars. Keep young children and pregnant women away from dogs for the first 24 hrs following collar application.</td>
<td>Effective against Brown dog tick, probable human carcinogen</td>
</tr>
<tr>
<td>Deltamethrin (pyrethroid family)</td>
<td>Scalibor</td>
<td>$38</td>
<td>Up to 2-3 weeks</td>
<td>Up to 6 months</td>
<td>Kills fleas and ticks</td>
<td>Do not open until ready to use. Do not let children play with collar. Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, clothes or eyes. Wash thoroughly with soap and water after handeling.</td>
<td>Less effective on Brown dog tick, reports of resistance</td>
</tr>
<tr>
<td>Tetrachlorvinfos</td>
<td>Hartz InControl, Hartz Ultraguard</td>
<td>$5-10</td>
<td>Several days</td>
<td>Up to 7 months</td>
<td>Kills and repels fleas and ticks</td>
<td>Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, clothes or eyes. Wash thoroughly with soap and water after handeling, and before eating, drinking, chewing gum, or using tobacco.</td>
<td>Organophosphate, possible human carcinogen</td>
</tr>
<tr>
<td>Natural products: Citronella/phenylethyl</td>
<td>Fly-free zone</td>
<td>$20</td>
<td>Has not been tested</td>
<td></td>
<td>Deterrent/repellant</td>
<td>Do not allow children to play with collar. Intended for external use only. Do not let dog chew on collar. Do not use other products with this collar. Do not use on sick or convalescing dogs.</td>
<td>Untested efficacy, not an EPA registered product, must remove for bathing</td>
</tr>
</tbody>
</table>
RMSF PREVENTION = TICK PREVENTION
WHAT CAN I GET FROM ADHS?

- Educational materials (brochures, bookmarks)
- Potential financial assistance for collars and pesticides
- Assistance during campaigns
- Annual case counts/data
- Knowledge and expertise
QUESTIONS?

Hayley Yaglom, MS, MPH
Hayley.Yaglom@azdhs.gov
602-542-2521

Naomi Drexler, MPH
Epidemiologist
Rickettsial Zoonosis Branch
Centers for Disease Control and Prevention

Email: isj3@cdc.gov
Office: (404) 718-4669
Blackberry: (404) 229-1886
Fax: (404) 639-2778