Managing Broad Mite Infestations in Arkansas

Blackberry harvest across the state is in full swing and most growers are focused on spotted wing drosophila management (SWD). Managing SWD often involves using weekly sprays of broad-spectrum insecticides such as pyrethroids or organophosphates, which we know can limit the ability of our natural enemies (predators and parasitoids) to suppress pest species like mites or aphids. Broad mite is a species of mite that we usually start to see in the heat of the summer due to its subtropical origin, which coincides with unprotected blackberries that have a disrupted natural enemy complex. With the early summer heat we've already seen this year, there's no surprise that we've already started to see broad mite adults and eggs at multiple locations across Arkansas (Picture 1 and 2).

Picture 1 – Broad mite observed on leaves of blackberry primocanes on 6/25/2020.

Picture 2 – Broad mite egg found in eastern Arkansas in mid-June 2021. Eggs can be identified by their polka dot appearance and are indicative of a rapidly increasing infestation.

Broad Mite Management in Blackberry

Scouting is key is to broad mite management. Any miticide that is applied before broad mite is present is likely to have no positive effect and could potentially lead to increased issues in the future. It's likely that pyrethroids or other insecticides used for SWD management could also promote broad mite issues, as many are known to kill predatory mites. Growers should scout for signs of injury in their plantings throughout the year, especially once the green fruit stage is reached. Damage will generally pop-up in a small area before it spreads throughout plantings. Damage will resemble auxin herbicide injury, such as injury from products like Dicamba or 2,4-D (Picture 3).

Picture 3 – Early signs of broad mite damage to primocanes terminals. Injury is characterized by the bronzed coloration and upturned nature of new leaves, along with twisted and cupped leaves from older damage.

Once any suspected broad mite injury is observed, pull around 10 unfurling leaflets (second-node from the top, leaves should be just starting to lay flat) from surrounding primocanes. Ambered-colored adult broad mites can be seen at about 30x-60x magnification. Also be on the lookout for their distinctly polka-dotted eggs, which indicate that it is time to spray.

Threshold

Broad mite numbers often build very rapidly and work by Dr. Donn Johnson has indicated that reaching 1-5 mites per leaflet at any spot within a field is the sweet spot for control. Once mites exceed an average of 10 per leaflet, damage is usually widespread and populations can be

difficult to effectively manage. Finding eggs in samples along with adult mites is also a good indication that it is time to apply a miticide for control. After applying any miticide for broad mite, continue scouting to assure effectiveness and for the potential of new infestations. Farms in Arkansas that have major broad mite issues often necessitate two applications a year, especially in years when the first infestations begin early.

Broad Mite Control Options

Currently there are many options to control broad mite, but only two that can safely be used in the heat of the summer (above 80-90°F). Products such as Mpede (potassium salts of fatty acids), Microthiol (sulfur), JMS Stylet Oil (paraffinic oil), or Neem Oil can offer sufficient suppression of broad mite. These products can be risky to use in the heat of the summer and can damage blackberry plants if applied when it is too hot.

Effective miticides that are safe to use in the summer include Magister SC and Agrimek SC + NIS (Picture 4). With these two products, growers effectively can make 3 applications in a single year for broad mite (2 Agri-Mek + NIS and 1 Magister). In most years only 1-2 applications will be necessary, but we have seen instances where infestations were hard to knock back for more than a few weeks at a time. These products both have a 7-day preharvest interval which may complicate their use in primocane fruiting cultivars.

	Miticides applied 15-Jul			
	All Actives/leaflet			
Treatment/ Formulation	**15-Jul**	**22-Jul**	**29-Jul**	**8-Aug**
Agri-Mek	11.5a	0.5d	8.5a	13.5a
Apta	15.4a	1.5cd	11.8a	20.2a
JMS 1% (applied 7/22)	17.8a	18.3ab	12.7a	12.1a
Magister	13.6a	0.9d	6.7a	20.7a
M-Pede	10.7a	15.6b	17.8a	18.5a
Zeal	11.9a	12.2bc	21.1a	20.3a
Check	15.6a	27.0a	26.2a	21.7a
	NS	$P < 0.05$	NS	NS

Picture 4 – Miticide Efficacy work by Dr. Donn Johnson.

Effective Management Plan for Broad Mite

Broad mite shows up too late in Arkansas to affect the floricane crop. Control efforts generally need to be focused on limiting damage to this years primocanes, which could translate to yield loss in primocane fruiting varieties and lowered yield potential in next year's floricane production (Picture 5). Scout for leaf injury and confirm that it is broad mite damage by sending in samples to your local extension service. If you are observing damage and there is more than

1 broad mite per leaflet across a significant portion of a planting, Agri-Mek + NIS is a good first option. Save Magister for a second shot as a rotation tool if necessary. You will need thorough coverage (75-100 GPA is preferable) to get acceptable control as this pest is often feeding deep inside terminal leaf material.

Give me a call at 479-249-7352 if you have any questions.

Aaron Cato

Picture 5 – Floricane from a plant damaged in August from infestations of broad mite. Buds formed during these broad mite infestations did not leaf-out in the following year.