Organic Insect Pest Management Q&A

IPM Recommendations by Dr. A, bugdoctor@auburn.edu, 251-331-8416

1. Is the canola oil used organic or GMO in the oil based insecticides?
   Answer: We talked about canola oil-based premixes, e.g., Pyola (0.5% pyrethrum + canola oil). Pyola is not OMRI approved but is marketed to naturally-grown gardeners and others.

2. When using trap plants how do you kill the pests attracted?
   
   Answer: In our research plots, we have yet to get to a good organic insecticide-based strategy for killing the leaffooted bugs. Adult leaffooted bugs or stink bugs are difficult to kill on SORGHUM trap crop heads, so we should target the nymphs (image on right – courtesy of UF/IFAS). A good insecticide could be spinosad (Entrust, MontereyGarden Insect Spray) and pyrethrum together or in rotation targeting the really small nymphs. Otherwise use mechanical methods like dipping the sorghum heads in soapy water and drowning adults, manually removing the adults, etc.

3. Where are you getting your trap crop seeds? Are they organic seeds?
   Answer: From 2010 to 2012, I bought the NK-300 sorghum seed (tougher to get than sunflower seed) from Sorghum Partners out of Texas and they had untreated seed. Now it is harder to get the seed from Texas. In 2013 and 2014, I bought sorghum seeds (NK300 and DKB5400) from Wilbur-Ellis and they only had treated seed with fungicide on it. Although not organic, the treated seed gives you a lot better plant stand if sorghum is planted early in the season ahead of the main crops. The untreated seeds had germination issues due to disease and storage was also poor. Check the Alabama Vegetable IPM website and refer to the trap crop training module, visit http://www.aces.edu/anr/ipm/Vegetable/trapcropmodule.php.

4. Diatomaceous earth for stink bugs?
   Answer: I don't have direct experience of studying diatomaceous earth but I think it is a physical poison and works well by 'masking' the texture and smell of host plants. So an insect walking over a well-treated plant won't feel the host and avoid feeding. I am reminded of Surround insecticide that has kaolin in it and acts the same way (forms a barrier film on crops). For any of these, thorough coverage is essential so you have to keep spraying to protect new growth against sucking insect pests.

5. Can you make your own pyola?
   Answer: I do not know the answer but I can tell you that commercial insecticides have ingredients beyond the active poison that stabilize the formulation. So Pyola (made by Gardens Alive) has a great mixing quality in water that may not be the same for home formulation. Pyola does not settle out or burn plants when used in the recommended amounts. You can try and let me know what you find out.

6. How many times can you use spinosad?
   Answer: Read the insecticide label because there are many products with spinosad. Entrust (80% spinosad that really works well against insects) and Monterey Garden Insect Spray should not be applied more than six times in a calendar year. Make sure to rotate spinosad with other modes of action to avoid insecticide resistance and nontarget effects. Do NOT overuse any single insecticide even in organic farming systems! If you do things right, you should not be using spinosad too much.

7. Where can one purchase shade cloth mentioned by Dr. A?
   Answer: The 30, 40 and 50% woven shade cloths we have studied for high tunnel crops was purchased from Poly-Tex Inc, Minnesota (http://www.poly-tex.com/). We asked custom cut shade cloths from them ranging from $250 to $450 for fitting two high tunnels with 30 and 40% cloth. For home gardeners and short term crop protection, I recommend using row covers like the Super Light Insect Barrier (http://www.gardensalive.com/product/super-light-insect-barrier-4/) that allows 85-90% light penetration and keeps insects away for a good bit. Check the Alabama Vegetable IPM website and refer to the insect exclusion training module for details (http://www.aces.edu/anr/ipm/Vegetable/pestexclusion.php).

8. I have a client that teaches gardening. Can I send her the ppts? Or even the pdfs of the ppts for her to use? Are they copyright protected?
   Answer: Feel free to share the information and please include the website information. Lot more information is available at www.aces.edu/vegetableipm. Join my Facebook page and get free information (https://www.facebook.com/#!/pages/Alabama-Vegetable-IPM/110601312341489). IPM newsletter is available at www.aces.edu/ipmcommunicator.

9. What is the name of the organic insecticide to control YMLB?
   Answer: Entrust or spinosad (see question 6 for details)

10. Once bugs are happy on sorghum and sunflowers, how do you destroy them (without insecticide) Best organic insecticide?
    Answer: Once the leaffooted bugs are on the sorghum (NOT sunflower) then it is time to kill them either with insecticides or manually. See question 2 for more details.

11. Where can a producer purchase seeds for the plant that attracts the lara wasp for biocontrol of molecrickets? Or any other information on molecricket control?
    Answer: I have no idea about this.

12. Will the pheromones in the traps effect honeybees?
    Answer: Pheromone used in common sticky traps are specific for moths and should not affect bees. If you see any problem with pheromones you bought, then immediately stop using them and call the company. You may occasionally see a bee accidentally stuck to the bottom of the sticky traps.

13. Would diatomaceous earth work on killing nymphs applied to leaves?
    Answer: Diatomaceous earth is an abrasive material and is like a physical poison. For action, insects must come in contact with the product. I am not sure how much is needed to kill nymphs but the details should be on the label. See question 4 for more information.

14. In addition to using crop rotation and cover crops, can soil amendments such as high chiton crabmeal help control nematodes?
    Answer: I do not know the answer.

15. Grain sorghum is a ratoon crop, or can be, does it work well when you cut the heads off? Do you need to have different varieties for sorghum?
    Answer: Some producers who have tried the trap crop of NK300 have saved the seed heads for next year's use. May be you can ratoon the NK300 (a forage sorghum variety) but I do not know that. I always grow them from seed saved from prior year and do a germination test to test their vigor. In my vegetable test plots we use two sorghum (NK300 and DKB5400) and one sunflower (Peredovik) variety. DKB5400 has a similar seed head like NK300 and a longer growing season to keep the insects busy. At the most basic level, planting two rows of sunflower on the outside and two rows of sorghum inside provides good habitat for keeping leaffooted bugs. This is also good for beneficial insects that hang around in the trap crop canopy. Spraying ONLY the sorghum heads with insecticides reduces chemical exposure of beneficial insects inside the canopy.

16. I know this isn't insect related, but a farmer had real problem with rust in his golden & silver queen sweet corn. What can be done for rust, organically, and or are there resistant varieties?
    Answer from Dr. Josh Freeman: There are corn varieties with rust resistance.

17. I need something to control aphids on milkweeds, but not have a negative affect on Monarch caterpillars. I'm using insecticidal soap, but it has a very limited effect.
    Answer: Aphids can be killed or suppressed by insecticidal oils such as paraffinic oils (Suffoil-X), neem oils (Neemix, Molt-X), etc. BotaniGard or Mycotrol are fungal formulations and are also good against aphids (though slow acting). We have had poor success with insecticidal soap in our trials, especially during high heat and rainy conditions. Oils are non-selective insecticides, so they can affect Monarch caterpillars if they get a direct hit. Same risk is with BotaniGard. So, your question is tricky for aphid control. May be <u>spot or directed application</u> of mentioned product may minimize loss of Monarch caterpillars.

18. How far away can you plant the trap crop from the main crop? Where can I buy the seed?
    Answer: The closest planted main crop was 6-ft in our trial few years back and the trap crops worked from such close distance. Leaffooted bugs will hardly fly to nearest tomato or bell pepper plants if you have good quality sorghum and sunflower trap crops in a planned layout. Planting too close may cause problems with equipment, so I recommend 8 to 10 ft (also reduces shading of main crops due to tall sorghum). Plant sunflower on the outside

rows and sorghum on the inside rows for maximum effectiveness, and at least two strips of each trap crop. For seed source, see my answer to Question 3.

Trap crop layout with sunflower trap crop on the outside and sorghum trap crop on the inside. Tomatoes were planted within 6-ft on the other side of sorghum. This way sunflowers get the leaffooted/stink bugs first followed by sorghum as it matures. Manage the pests when they are on the sorghum.

19. Can you use organic products like Neem oil to kill leaf footed nymphs?
    Answer: Please see answer to Question 2. Neem oil may not cause a good kill of the nymphs but I have no data to support this. Neem oil may cause some nymphs to choke and die! Check insecticide label and follow it for application recommendations and target pests.

20. How far in advance do you plant the trap crops?
    Answer: Trap crops with sorghum/sunflower trap crop must be planted two weeks before transplanting the main crop. For hubbard squash trap crop, you can plant the trap crop along with the main crop of squash you are trying to protect (in different rows). Not all insects can be controlled by trap crops!

21. Do you plant the trap crops at intervals so they last the whole season?
    Answer: For long season trap crops like sorghum that we talked about, several staggered rows of trap crops can provide a continuum of food to the leaffooted/stink bugs. Same is true for any trap crop. But an efficient system of trap cropping should not exceed 15% area under trap crops – the less area under trap crops, the better it will be.

22. Are there any recipes for making your own organic insecticides beside soap spray for small gardens?
    Answer: I have not tried making my own insecticides but have heard a lot about them. Do a search on the internet and then consult an Extension agent for feasibility before you use anything on the crop you are going to eat. Too much dish detergent commonly used by gardeners can cause severe leaf burn. So be cautious of your approach.

23. I want to companion plant? What flowers or herbs would you suggest planting?
Answer: There are several good publications about companion – see https://attra.ncat.org/attra-pub/summaries/summary.php?pub=72 as an example. Check other resources as well and find the most effective system for your target pest. Only careful planning and right materials will work to your benefit. Try NOT to mix ornamentals with vegetables since many insects/mites buildup on ornamental plants. Herbs and vegetables in combination may work better (e.g., basil is a popular companion plant).

24. What are organic methods to control squash vine borer?
Answer: Please refer to the slide chart and you will see some recommendations such as use of pheromone traps (to detect moths early), use of trap crop (hubbard squash – based on published work), use of physical exclusion (Super Light Insect Fabric during pre-bloom phase), and organic insecticides as the last resort. Use of fabric with U-frames placed over rows of squash has great potential to exclude early insect pest infestation on squash. Remove the fabric when the plants start blooming – by then the vine borer intensity will be minimum and your vines will have longer survival.