FOCUS on South Plains Agriculture

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Cotton Insects

When to quit protecting fruit from insects

We are now several weeks into the final boll filling stage of the game and closely approaching the point where insects should no longer pose much of a threat. Remember that a quality boll requires 750-850 heat units (HU) to develop, and depending on how warm a fall we get, there is a good chance that many of the bolls set in mid to late August may not develop, and those that do may be low in quality and not worth protecting. As a rule of thumb on moderately irrigated, open canopied cotton, once a boll accumulates 350 HU it is considered safe from Lygus damage, and once a boll has accumulated 450 HU it should be safe from new bollworm egg lays. However, this rule may not hold true for high yield potential cotton that is under a high irrigation regime, or has a shady canopy. Bolls grown under these conditions may stay relatively soft beyond 450 HU. Essentially, a fairly good test to tell if a boll is susceptible to insect damage is simply to cut the boll with a knife and determine if it's soft or hard. Most cotton from Lubbock southward should be pretty much out of the woods. And the cotton that has completely cutout and has nothing but larger bolls remaining, should not require protection from bollworm or armyworms. However, cotton that still has blooms and small bolls has the potential to attract a lot of bollworms, and the large soft bolls associated with these attractive plants are probably worth protecting. So at this stage in the season, as long as we have soft large bolls susceptible to worm feeding and blooms and small bolls present to get

a bollworm population going, we should take necessary step to prevent bollworms from developing damaging populations.

Bollworms

We are seeing some pretty heavy egg lays in counties north of Lubbock. Some non-Bt cotton has is averaging over 24,000 bollworms per acre. We have noticed that although there are eggs being laid in the terminals, a large proportion of the eggs are being deposited on the blooms resulting in small bollworms developing under the bloom tags.

Bollworms will often feed on small bolls under the bloom tag

These worms tend to be more difficult to controls since it is hard to get the insecticide to them and we have to depend on residual insecticide activity for control once the worm begins to move about. When scouting, make sure you do whole plant inspections, look at the squares, bloom, under tags, bolls, the whole 9 yards. We are conducting and insecticide efficacy test in Castro County, and all indications are that the pyrethroids are still the products of choice for managing bollworms in non-Bt cotton. In the Castro Co. test we evaluated Karate, Steward, and two new products, Belt and Coragen. A previous study conducted this year indicated that Belt, Coargen and Steward all had good activity on beet armyworms, and we were hoping that one or more of these products might show good activity on bollworms so that we would have an non-tank mix insecticide option when both armyworms and bollworms are present. Karate was included in the study as a pyrethroid standard. On August 27, the bollworm population was averaging about 27,000 worms per acre (click here to view data). At the start of the trial, the bollworm population was made up primarily of small worms, less than ¼ inch in length. We would suspect that this size of worm should be very susceptible to the insecticides. Five days after the insecticides were applied, Karate and Coragen were the only two treatments that had significantly fewer worms than the untreated control. Numerically, Karate appeared to be the best treatment, but even that treatment was still averaging about 7500 medium to large worms per acre, which is above the threshold of 5000 medium to large worms per acre. So why the poor results? Some might point the finger at resistance, but we have no data that would support this. In fact, recent bollworm vial assays suggests that our bollworms should be susceptible to low to moderate rates of a pyrethroid. I suspect our difficulty in controlling this population has more to do with worm behavior and coverage. A large proportion of the bollworms we saw on August 27 were feeding under the bloom tag, sheltered from direct insecticide exposure, and much of the cotton in the test was around 3-ft tall, on 30-inch rows and fairly dense, thus making coverage difficult. Additionally, we used a 3.84 oz rate of Karate (a moderate rate). The bollworms simply were not exposed to enough insecticide to elicit a desirable response. Will we kill more of the bollworms as time goes on? Maybe, but I doubt it will be enough. These worms are moving into the larger bolls, and if they successfully begin to feed there, there is little reason for them to move around more and get more insecticide exposure. Would a higher rate of Karate have provided better control? I can't say for sure, but I would think so. In hindsight we should have used a higher rate in this test. So the lesson is; when dealing with cryptic feeders

such as bollworms feeding under the tags in dense cotton, you really need to maximize coverage and in these situations, although data may suggest that our bollworms are highly susceptible to pyrethroids, a high rate of a pyrethroid may be justified. DLK

Sorghum Insects

We still have high numbers of headworms in many fields., and protection may be necessary until the hard dough stage is reached. The headworm complex is mostly comprised of corn earworm (cotton bollworm) and fall armyworm. Of these, corn earworm is a bit easier to kill with pyrethroid insecticides. David's section on cotton (above) pointed out that vial bioassays conducted in the area this year tell us that our earworm populations are susceptible to pyrethroids and that we don't have any reason to suspect there is a tolerance or resistance problem. It has been a bad fall armyworm year, and this is not news to anyone. I have noticed a shift though; corn earworm has become a bit more abundant in sorghum heads in relation to fall armyworm. At this point there is no practical reason to differentiate between the two species when making control decisions. This is because we expect adequate control of either species with pyrethroids. That being said, remember that large larvae are a lot more difficult to kill than are medium sized larvae, and fall armyworm is harder to kill than corn earworm. All of this suggests that high rates of pyrethroids might be a wise choice when one is faced with high numbers of worms, large worms, and more fall armyworms in the mix.

I am getting reports that Lorsban is in short supply in places. We do expect good control of headworms with pyrethroids alone, but Lorsban is often added when greenbugs and/or sorghum midge are also threatening sorghum grown for grain. The key thing to note when considering Lorsban this late in the season is that there is a 30 day pre-harvest interval for sorghum grown for grain, forage, fodder, hay or silage when Lorsban is used at the 1 pint (or less) per acre rate. There is a 60 day pre-harvest interval when Lorsban is used at a rate higher than one pint per acre. RPP

Sorghum Agronomy

When can I stop irrigating grain sorghum?

When can I stop irrigating grain sorghum? As a rule of thumb, if good soil moisture is still available to the plant—at least 1-2"—then terminate near soft dough. The sorghum seed will proceed through grain development from watery ripe to milky ripe to mealy ripe, then it begins to firm at soft dough on to hard dough. Physiological maturity occurs at black layer, the appearance of a black dot on the tip of the seed. This usually occurs about 10-12 days after soft dough under warm conditions. Overall, grain sorghum usually takes about 30-35 days from flowering to physiological maturity.

Seed moisture at black layer is ~25-35%, but harvest must be below 20% moisture with drying required. Grain can be harvested without drying at 13 to 14% grain moisture to avoid dockage (depends on delivery point).

Since my first comments, I also note to producers that you must be sure to check many heads and check the whole head. Some difference in maturity will be observed on each head as seeds at the tip could easily be 7 days older than seeds at the bottom of the head. Sorghum flowers at the tip first then moves down, and there could be as little as four days difference in flowering and pollination for a small head to as much as nine days for a large head.

Can I use the color of the grain sorghum head to determine irrigation termination?

Not reliably. You still need to do a hands-on check of the heads. Turnrow observations of

sorghum fields do not tell you how much soil moisture is still available, which could be from none to an amount that is more than twice what you may apply in one irrigation. Head coloration may vary depending on hybrid as some 'red' sorghums are not as red as others.

My observations over the past couple of weeks suggest in general when the seed in the head begins to take on an orange or reddish tint, the seed is most likely at the milk stage. As a field turns color such that you readily observe it while driving down the road then the sorghum grain tends to be in the mealy stage to perhaps just entering soft dough. But this is not a reliable means of deciding to irrigate again unless you check for available soil moisture and the seed stage of growth. Irrigation specialist Leon New, Texas AgriLife Extension Service, Amarillo, has noted that little to no increase in yield is likely after a general red color appears over the field, but an additional late season irrigation might help maintain stalk quality for harvest.

Additional grain sorghum irrigation resources are available from Texas AgriLife Extension Service irrigation specialist Leon New, Amarillo, "Grain Sorghum Irrigation", and additional information from Kansas State University notes key considerations for grain sorghum in deficit irrigation. CT

Just a few photos

We have a little extra room this week, so I though I would put in some photos. The first is of an unusual beetle called the Charlie Brown blister beetle. It is not common here, and the brown patches on the wings are said to resemble those on Charlie's sweater. I found it in sunflowers at the Lubbock Center, and I will look in alfalfa next week just to make sure it is not there.

Charlie Brown blister beetle

Gulf fritillary butterfly

Honey bee gathering pollen on sunflower

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