Welcome to Ground Work

Dear J.P.,

We are coming into the heart of the insect and disease season and we should be mindful of these threats to farm income.

Fruit and vegetable farmers have always intensively scouted their high-value crops for pests and diseases. On the flip side, grain and forage farmers have rarely been able to justify the expense of weekly scouting on their lower-margin crops. But today's sustained price rises in agronomic crops have changed the equations.

These equations are known as action thresholds. The action threshold of a particular crop or pest is reached when doing nothing about the problem will cost you more money (in yield and quality) than the cost of the products used and applied to correct the problem. That equation is stated as: (estimated yield loss X value of the product) – (cost of inputs + cost of application) = return on investment. If the difference is negative you just wasted money. If the difference is positive you just made money. Notice that when the value of the product goes up, while the cost of fixing the problem stays fairly stable, it takes less yield loss before you start losing money. Estimating the yield loss is not difficult. There is lots of published information from extension on how to calculate loss based on percent of infestation and so forth. Your AgriEnergy

rep can also be a resource to help guide you through that determination, as well as help you decide which products will best counteract a given problem.

The ideal situation, in which we would apply a correction, is to get ahead of a problem that is likely to become worse. Just like what our doctor tells us: the earlier we diagnose and treat a problem, the better our results will be.

Early diagnosis of problems in crops is a matter of getting into the fields and finding them. If we wish to do this ourselves, and farm a lot of acreage, we may be daunted by the question of where to look first. Look first in those areas that you know from experience are prone to problems. For example, if you are plagued by white mold in beans limit your early scouting to the low spots in your fields. If soybean aphids are about, check first on the south sides of the fields. If Stewarts wilt in corn is a problem in your area go to areas where wind movement is hampered by trees. Farmers know where their problem areas are. Check those areas first.

We can go out looking for specific problems like aphids, and should do so when there is a known and present threat. Or we can walk into fields looking for any and all problems. Likewise, do not be intimidated about what a particular problem may be; it is enough to find it. Then with the help of an agronomist or other professional, that problem can be identified and evaluated to determine if action should be taken. Step one in the process of looking, is to see the whole field from a high vantage point if possible. Let your eye wander slowly across the field to see if there are areas that are different. Determine if the difference is mechanical or not. For instance tillage equipment can lead to differences in the appearance of a canopy but they nearly always involve some straight lines. Areas with disease or insects typically are irregularly shaped. Though some problems, like nematodes, often have a mechanical component which partly defines their overall appearance.

When areas with a problem are spotted, head toward them. On your way there, clear your mind and don't think. It's like hitting a fastball, the more you think at the plate the more you strike out. Let your eyes see everything, sense the feel of the soil under your feet, listen to the swish or crackle of the plants as you go through them. Look for anything that is different. When a difference is found start thinking again and examine what you see. If it is an insect pest, we can typically identify and treat it quickly. If it is a disease or a nutritional deficiency (which invites disease and insects) there are many things we want to observe to help identify the problem. We all tend to look first at the symptom and start guessing as to what it might be. Some of these problems, like gray leaf spot in corn, are so familiar that a quick look at the symptoms is all we need. But when we are not sure, which is often the case, we need to look at several things. Is the problem more on the new

growth or more on the old growth? Is it on the edges of the leaves or in the center or all over? Does the spot cross the leaf veins or do the leaf veins confine the problem? If it is a lesion, what is the appearance on the bottom of the leaf as well as on the top? This and more is a lot to remember so a very good practice after you have found a problem is to call your crop consultant from right there in the field so that he can ask questions. He may ask questions that you will need a magnifying glass, shovel, or a sharp knife to answer. In that case take a whole plant with you back to the house or the shop, roots and all.

All this is said to highlight that far and away the most important factor to successfully thwart pests is to accurately identify them. But not just so you can pick the best chemistry to combat them. Mineral nutrition in the plant is a huge factor in determining whether you will incur an economic level of a pest or not. It also can be very effective when applied as a corrective at reducing current pest pressure. But if we misidentify a problem we could make problems worse with fertilizers. For example, some diseases are prevalent when tissue N is low. So OK, add a bit of foliar N. But other diseases are favored by high tissue N so if we foliar N and have misidentified a problem we can make a problem worse.

We also want to employ mineral nutrition in pest control because doing so makes us less reliant on toxic chemistries. Even organic folks will go out with Pyganic to fight earworm, and are probably right to do so. But even organic pyrethrum is very nasty stuff, and if we had kept the brix of our crop up through proper mineral nutrition we may not have needed to use it, or at least use less of it.

Because row crops have become valuable, we shouldn't, out of old habit, leave money on the table by letting insects, disease, and deficiencies go untreated. Find out firsthand what is happening in your high value crops, or hire a scout to do it for you and take appropriate action.