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Agronomy Notes

Capital Region

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Capital Region Extension Agronomy Team

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Inside This Issue

Soybean Rust: Answers to Common Questions

Soybean rust is a serious threat to soybean production in the US. Soybean rust has been lurking south of the border for several years now and was reported for the first time in North America earlier this month. Since the initial finding in Louisiana, the disease has been reported the several additional southern states. The weather during the growing season appears to be favorable for disease development in most areas of the US and the USDA is estimating that the disease is capable of reducing yields by 10-80%. Total losses the first year may approach $1.3 billion. The management of soybean rust will be not be simple. The USDA has evaluated all soybean varieties currently grown in the country and found only limited levels of natural resistance to the disease. The first line of defense against soybean rust is likely to be carefully timed fungicide applications.

The implications of soybean rust for Pennsylvania are not completely clear. However, based on recent research and other resources, we may be able to answer some common questions about soybean rust.

What other crops might be affected by soybean rust?
The fungus that causes soybean rust has many different host plants including soybeans, green beans, dry edible beans, sweet clover, and kudzu. At this point, we know that soybeans and kudzu can be severely diseased and support large amounts of reproduction by the fungus. The degree to which other hosts will become infected and allow reproduction remains unclear. In fact, disease severity and reproduction levels will likely vary with specific variety of a given crop. Kudzu is an important host because it may play a role in where the fungus survives in North America.

Will the fungus that causes soybean rust survive in Pennsylvania?
No, based on recent research by Iowa State University it does not appear that the fungus will survive the winter in Pennsylvania. However, the fungus is likely to survive in southern states where mild winter conditions allow survival of the fungus and allow kudzu to remain green all year.

How could soybean rust spread to Pennsylvania?
The fungus that causes soybean rust is thought to be moved great distances by wind, and it is possible that soybean rust will be moved by wind from southern states where the fungus survives the winter into northern states each season. The timing of these migrations relative to soybean development will have a great impact on how we manage soybean rust here in PA. For example, if rust arrives early in a growing season and weather conditions favor disease development, we may have to use multiple fungicide applications to control the disease. However, if the disease is not moved into the area by wind currents or arrives late in a growing season, then no fungicides will be required.

What has been done in Pennsylvania to prepare?
The Pennsylvania Department of Agriculture and Penn State have joined with many soybean producing states and applied for "section 18" status for fungicides not currently labeled for application on soybeans. About half of these requests have been approved by the EPA, and we are hopeful the remaining requests will be processed quickly. This means that soybean producers in the Commonwealth will have access to these additional tools if they are needed next season. Penn State Extension Plant Pathologist, Dr. Erick DeWolf has been working with disease specialists in other states to develop resources that can help producers identify the disease and refresh their knowledge of fungicide use. These resources should be available during the next few months and will be distributed by Penn State Extension. Current Penn State resources are available on-line at http://cornandsoybeans.psu.edu/

Dr. Erick De Wolf
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Crop Insurance News

2005 Risk Management Planning

Now is the time to start firming-up your risk management plans for 2005. This includes planning for increased profitability, as well as managing downside risk exposures when things go wrong. Profit planning for many producers starts with studying 2004 crop year performance records of yields and related inputs (identifying the best performing seeds, fertilizer, chemicals, etc.).

Making 2005 production plans now prepares you to benefit from early ordering to get the best discounts and making sure you can get the items that you want. It's also good to analyze the 2004 crop marketing strategies and their results. We're hearing numerous reports of the added income that some producers realized from preharvest marketing (i.e. $2.80 vs. $2 corn). To keep on top of the tools and strategies, consider getting involved in a marketing club where you'll have the opportunity to interact with other producers and experts to sort out the pros and cons of the various marketing strategies. Be sure to check out how crop insurance protection can reduce your marketing risk exposures too. One source of information is http://www.AgManager.info, Crops, RAM. If you need help finding a marketing club, ask your county Extension Educator for help.

Determining the downside risk exposures is a critical part of risk management planning. Work through a series of "What Ifs" and calculate the financial consequences that each would have if it occurs. Next, pencil-out the benefit vs. cost of tools to better manage each of the exposures. Crop insurance is an important part of their downside risk management plans for an increasing number of producers. Remember that the production wrecks experienced over the last 10 years can and probably will re-occur, to some degree in the future. PA producers in aggregate received $163 million in loss payments compared to about $ 32 million in net premium cost for a return of over $5 in loss payments for each dollar of premiums costs that they paid. Loss payments to producers exceeded net premium costs in 9 of the 10 years. The sad part is that another $160 million was left on the table by the 50% not insured!

Crop insurance protection news

The PA State Legislature just passed crop insurance improvement legislation to change state premium assistance program. The effect of this change will apply the $2 million approved for 2005 to the premium of Buy-Up policies. This is expected to increase the discount percentage rate by about 50% because in prior years about 1/3 of the state assistance funds were first applied to producer policy fees (including $100 for CAT policies) and only the remaining funds were applied to Buy-Up premium costs. This legislation was awaiting the Governor's signature at press time.

Producers are encouraged to do a benefit vs. cost analysis of the different crop insurance plans and the many choices available with-in each plan. Most crop insurance agents can do a computer printout of all of the options but it takes some time, so see your agent soon to start the process. Keep in mind that in the aggregate, the premium costs set by USDA for all of the different plans and choices are expected to result producer loss paybacks of about $2 for each $1 producer costs.

A very brief summary of the insurance plans follow:

Adjusted Gross Revenue-Lite (AGR-Lite) is a whole-farm gross revenue protection plan based on the 5 year average (1999-2003) of eligible commodity income (including most crops and animals) from your IRS 1040 F., part 1 or related tax forms. It provides dollar coverage and protects against major fluctuations in gross income due to natural disasters and/or market price fluctuations. Loss payments are determined comparing the approved expected gross income of ag commodities, times the selected level of coverage, less the value of ag commodities produced; any deficiency is multiplied by the payment rate (which reflects co-insurance). AGR-Lite usually provides more protection per dollar of premium cost than other plans. It works best for producers producing ag commodities for sale (including direct marketing). There are no complicated production discount charts to determine allowances for poor quality as all adjustments are based on market value of damaged commodities. **Enrollment deadline is 1/31/05.**

Yield Coverage (APH or GYC) is an individual crop protection plan that guarantees a specific amount of production, which is usually, based on an average of the producer's actual production history (APH) on their farm(s). Producers can select coverages of from 50% to 75% (80% and 85% on some crops) of their approved APH yield. If production for the individual farm unit is less than the yield guarantee, a loss payment is calculated at a pre-selected price election set by the USDA. Producers can choose less that the maximum price election (many to choose from at each coverage level) to make higher levels of coverage, with higher yield loss triggers, more affordable. **Enrollment deadline is 3/15/05 for most spring crops.**

Crop Revenue Coverage (CRC) is an individual crop protection plan (available on corn, soybean and wheat) that guarantees a specific amount of revenue which is usually based on an average the producers actual production history (APH) on their farm(s) times average board of trade futures contract prices. Producers can select coverage of from 50% to 85% of their approved APH yield. The difference between the revenue guarantee and the revenue of production (production times average board of trade harvest time futures contract price) on the individual farm unit is the loss payment. This is the most popular insurance plan and usually has the highest premium cost. **Enrollment deadline is 3/15/05 for most spring crops.**

Remember, only the producers can choose a crop insurance option that will result in the program performing up to their expectations, when disasters occur. **Contact your crop insurance agent well before the enrollment deadlines for details and to get a printout of all of the coverage plans/level/price choices and the premium costs for each**. Study each to see what is best for you. Higher coverages perform better but the initial cost is higher (i.e. 90% of PA corn and soybean loss payments went to producers with 70% or higher levels of coverage).

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On-Farm Tests Around the Region

Several on-farms test plots are being done in our area this year. Just as you are getting corn and soybeans off, our test plots are also being harvested and the results from them will be made available to you as we complete them. Here's what we have going this year.

Bt Rootworm Corn (YGRW™)

We continued the work we started last year. The three fields that we are testing this product in are near Quarryville in Lancaster County, at the Landisville Research Station and near Hanover in Adams County. In this test we used one hybrid with the Bt rootworm protection, the same hybrid without the Bt but with a row insecticide and the same hybrid without the Bt gene and without any insecticide (check). In the Quarryville and Landisville tests a comparison of Poncho 1250 ™ was also added in.

Corn Hybrid Testing

This test of fourteen commercially available hybrids was done at six farms that stretch as far east as Lebanon, south to Quarryville, west to Shippensburg and to Elizabethville in the north. The project is a result of collaboration with cooperating Young Farmer chapters. It arose out of concern we have that some farmers are relying a lot on information from a single, non-replicated test at one farm to make decisions about corn hybrids.

At the time this article is being written, one field has not been harvested. Included here are the results averaged from the other five locations. Not all differences are significant. A more detailed report with statistical analysis will be available upon request. We hope you will find this information more reliable and predictive of how a hybrid will do.

I hope to continue this project in the future with more involvement of farmers in the selection of hybrids to be tested. The number of hybrids we do will depend on how much interest and involvement there is. The more of that we have, the more we can accomplish.

John Rowehl, CCA
Grain Crops
Cumberland County

Corn Hybrid Test Results
Average of Five Farm Locations

Hybrid	Yield	Moisture	Population	% Broken	% Barren
Asgrow RX702YG	206.1	21.5	26,475	2.3	1.5
Pioneer 33B51	204.7	22.0	26,900	6.1	3.6
Seedway 7513 YG	197.5	22.2	27,750	2.7	5.3
Hubner 3522P*	197.1	20.7	26,775	15.5	2.8
Syngenta 70-F1	196.5	20.8	25,525	2.7	5.3
Mycogen 2P786	195.0	22.6	26,200	2.2	4.7
Dekalb C63-81	194.3	22.4	27,350	3.9	3.7
FS 6102	191.6	19.7	25,475	14.9	4.4
Biogene 1130*	188.5	21.2	26,500	9.3	6.2
Doebler 648 RYG	185.8	19.4	26,425	6.7	3.2
Garst 8454YG	185.5	22.6	23,275	7.7	4.3
Chemgro 7323RRBt	185.3	19.6	25,150	13.4	4.7
Golden Harvest 9247Bt	183.3	19.3	26,300	5.3	2.2
TA 6953 RRYG	175.9	22.6	25,550	5.1	3.8
Least significant difference >>	12.7	1.6	ns	9.5	ns

* non-Bt

Round Bale and Other Hay Fires – It Can Happen to You!

Recently I was contacted by a round-bale hay producer who had a fortunate (?) hay fire experience on his farm. Thanks to neighbors and the fire company he was able to prevent significant losses but he called to suggest a discussion on some reminders for all hay producers and feeders. In this instance the hay was mature first cutting of Timothy that was round-baled, wrapped and stored along a fence row. One morning, in November, his neighbor spotted smoke and called the fire company. Sure enough, within a single wrapped bale, sufficient heat had been generated to melt the plastic and hot zones were present.

This farmer wanted to emphasize the potential risks when storing hay bales near buildings. Hay fires commonly occur within 6 weeks of harvest but sometimes hay several years old can ignite. Loose hay, hand, round or large square bales stored inside or outside can also ignite.

The process of successful forage storage depends on one of two processes. In silages or wet forages, storage is dependant on getting the pH of the forage mass below 4.0 by excluding air and having ideal moisture conditions. Dry hay depends on low moisture levels (>15%) to stop microbial activity in the forage mass.

All forage crops have natural populations of bacteria, molds and fungus on them. If conditions are favorable these microbes will consume forage nutrients and multiply, generating heat. Usually near 130°F high temperatures will kill these bacteria and temperatures will drop. Often the microbes will rebound again and temperatures will again rise, usually to a lower temperature. This heating cycle can be repeated frequently until the hay becomes stabilized. This heat-damaged, brown-colored hay may be tasty to cattle but contains very little nutrients since these were consumed by the microbes.

If another type of bacterial (thermophillic or heat loving) are present in the forage then a secondary heating cycle may follow the original cycle. These bacteria rapidly develop temperatures from 130 to 170 °F when bacterial activities will cease. However, at high temperatures and in the presence of oxygen the forage mass may self-ignite.

In this case, ignition was probably set off by factors that cannot be definitely determined. There was only one wrapped bale that gave a problem. Perhaps there was an area of more mature forage or weeds with hollow stems to provide initial oxygen. The forage mass in the windrow could have also been slightly drier than the remainder of the field. There was probably an opening in the wrapping caused by rodents that allowed air to enter. Prevailing winds could have been able to drive additional air into the opened bale. In any case one of the bales got hot enough to ignite. Thankfully a neighbor spotted it on a cold morning and significant losses were prevented.

Check your hay, especially stored close to buildings for signs of heating. Temperatures approaching 160 °F are a signal to be prepared for fire. Contact your local fire company at the first sign of potential problems. For additional information on monitoring hay for heating and how to fight a hay fire contact me at 717-921-8803. Be smart and be safe.

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