Penn State EXTENSION
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Agronomy Notes

Capital Region Extension Agronomy Team
Mark Goodson, Editor

grow BETTER CROPS AND PROFITABILITY

PENNSTATE
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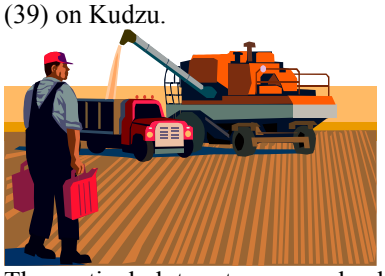
Inside This Issue

What Was Learned About Soybean Rust in 2005?

The joint Penn State and Cornell University Soybean Rust Teleconference on January 12 provided great insight on the experience of the southeast United States with Asian Soybean Rust in 2005. Weather conditions unfavorable for the development of the disease in the south limited its spread. Different weather could have greatly altered the situation. So even though soybean rust did not reach our area in 2005, it does not mean we can lower our guard.

There were one hundred thirty eight (138) official detections of soybean rust last year, one hundred nine (109) appeared on soybeans and thirty nine (39) on Kudzu.



The sentinel plot system proved valuable as detection in those areas were picked up two to three weeks earlier than commercial fields. One trend was quite clear; soybean rust was only found in soybeans that had reached the reproductive stage. In fact, very few were detected before growth stage R3 which is when the soybeans are first beginning to form pods. In a given location, the varieties that were in the most advanced stages were detected first.

Unfortunately, they came to the conclusion that the early, low level infections were impossible to detect in the field. Early detection was only made through field sampling followed by testing in a lab. In-field detection is unlikely before twenty to forty percent incidence occurs, which is too late to get the most attainable control with fungicides. Therefore we will not be able to rely on field scouting to make decisions about spraying fungicides. Growers will need to tune in to trusted sources of information to find out, based on a sampling and testing detection network, when a spray will be needed.

Other positive findings were:

- Forage legumes were not found to be infected
- Fungicide applications did prevent yield loss. In test plots, unsprayed soybean yields were cut forty percent (40%). Untreated farm fields in Alabama and Georgia lost twenty (20) bushels per acre.
- Current spray technology is adequate to get good control. The key is to use at least fifteen to twenty gallons per acre spray volume.

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- There appears to be a lag time of several weeks between early detection in the lower level crop canopy and an "explosive stage" in the middle and upper canopy. This indicates that there will be time to get out in the field and spray before it is too late.
- If infection begins after stage R3 (beginning to pod), then only one spray application should be needed. If it occurs after stage R5 (1/8" long seed in one of the four uppermost nodes), it is probably not necessary to spray.

Spraying fungicides on soybeans in the absence of rust is a gamble. Averaged over a large number of tests, depending on the fu ngicide, the chances of getting a profitable benefit ranged from one in ten to one in three.

Bottom Line: Soybean rust is not to be feared but respected.

John Rowehl, CCA
Grain Crops

2006 CROP INSURANCE DECISION TIME

Many producers are asking, "What is the best crop insurance coverage per dollar of premium cost in a tight budget year?" The question emerges because of budget projections of $5 to $20. The conversation continues…I know that crop insurance is important and it's foolish to farm without it, but I must cut costs. Such questions require a close examination of the different insurance plans (protection based on yield, revenue that triggers on an individual farm, whole farm or county average fluctuations). We also know the importance of higher levels of coverage (i.e. in 2003 90% of corn and soybean loss payments were made at coverage levels greater than 65%; 75% level paid 2.3 times as much as 65% coverage level). So what are some of the options to maintain respectable coverage at reduced cost?

The amount of insurance selected should first focus on the amount of protection needed. So let's say a producer determines that they really need 75% level coverage with some individual farm loss triggers. Illustrations of some considerations follow:

Newsletter Illustration - per acre illustration:						**Estimates for Educational Purposes**			
Levels of Coverage		50/100%		65%		75%		80%	
MPCI APH Yield Cov.		Liability	Premium	Liability	Premium	Liability	Premium	Liability	Premium
	Corn	117	$2.60	$152	$5.90	$176	$11.40	$199	$17.90
	Soybeans	103	$2.60	$134	$5.70	$155	$11.10	$175	$17.30
Corn/Soybeans Avg.		$110	$2.60	$143	$5.80	$166	$11.25	$187	$17.60
CRC Rev. Cov.	Corn	139	$3.40	$181	$7.50	$209	$13.90	$223	$21.80
	Soybeans	111	$2.90	$144	$6.50	$144	$6.50	$177	$18.60
Corn/Soybeans Avg.		$125	$3.15	$163	$7.00	$177	$10.20	$200	$20.20
AGR-Lite Whole Farm Revenue									
	Corn	N/A	N/A	$146	$3.60	$169	$7.06	Requires 3 crops	
	Soybeans	N/A	N/A	$124	$3.00	$143	$6.00	for eligibility for	
Corn/Soybeans		N/A	N/A	$133	$2.20	$159	$4.30	80% level	
AGR-Lite & MP or CRC Together									
AGR-L + MP 65%	Corn/Soy	N/A	N/A	$133	$6.90	$159	$8.00		
AGR-L + MP 50/100%	Corn/Soy	N/A	N/A	$133	$3.70	$159	$4.80		
AGR-L + CRC 65%	Corn/Soy	N/A	N/A	$133	$8.10	$159	$9.20		
AGR-L + CRC 50/100%	Corn/Soy	N/A	N/A	$133	$4.25	$159	$5.35		
Net cost of AGR-L with above choices:					**$1.10**		**$2.20**		
Assumptions:	APH Yields = 120bu./a. corn and 40 bu./a. soybeans; corn and soybean mix-each 50% of acreage -								
	CRC estimates @ 2005 prices and premiums as 2006 not available until after 3/01/06								
	90% payment rates used for AGR-L illustrations.								
NOTE: Estimates vary from county to county and with variance in APH yield and % of acres devoted to each crop in mix.									

Summary: The combination of CRC and AGR-Lite provides some individual farm unit spot loss protection trigger with higher overall coverage against whole farm disasters at reduced premiums. Purchase the best protection that you can afford. **Contact a crop insurance agent for coverage on your farm before the 3/15 enrollment deadline.**

Gene Gantz
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High Fertilizer Prices: What to do?

Recently, fertilizer prices have been higher and supplies of some nutrients have been tighter. Yet most realize, and research continues to confirm, the critical role of fertilizer use in profitable crop production. Here are some suggestions for keeping fertilizer bills as low as possible without compromising the yield that brings much needed revenue.

- **Account for nutrient supplies already in the soil.** When fertilizer costs increase and supplies tighten, soil test results provide the best guidance for deciding which nutrients should be applied and how much of them to use. Taking nitrogen (N) credits for previous legume crops and using a soil nitrate test, where applicable, are also recommended.

- **Account for nutrient supplies on the farm or nearby.** If you have access to manure, whether it's on your farm or your neighbor's, use it as effectively as possible.
- **Time nutrient applications for highest efficiency.** Apply N close to the time of crop need, such as the spring. Where possible, apply manure ahead of grass crops.
- **Place nutrients for greatest efficiency.** Generally, banded nutrient applications provide higher first-year recovery of applied phosphorus and potassium than do broadcast applications. If short-term economic decisions dictate banding phosphorus and potassium at rates less than those of crop removal, producers and advisers may want to build in a plan for replenishing soil nutrient supplies in the future, when economic conditions improve.
- **Lime soils that are too acid.** Liming reduces soil acidity and helps make many nutrients more available while reducing toxicities of other elements, like aluminum. Maintaining proper acidity levels improves fertilizer use efficiency and improves nodulation and N nutrition of legumes.
- **Allocate money to the right nutrients.** When more than one is needed, response to a single nutrient will be limited if only it is added. A balanced approach, supplying some of each needed nutrient, has the best chances of maximizing the effectiveness of all applied.
- **Prioritize fields and areas within fields.** Allocating nutrient funds across the farm should be based not only on soil tests, but also on economic evaluations of each field or field area. Consistently profitable fields or field areas should get the nutrients they need to maintain production and revenue levels.
- **Examine yield goals.** Since many nutrient recommendations are based on yield expectations, setting realistic yield goals is important.
- **Efficient nutrient use is possible only when informed decisions can be made.** Keeping soil test information up-to-date, identifying profitable fields or field areas, using all nutrient sources available, liming and adopting nutrient management practices founded on proven scientific principles ensure the greatest chances for success.

Del Voight, CCA
Integrated Crop Management

Mid March –Time to Check Alfalfa Stands

While at the Dairy and Agronomy Team exhibit this week at the Ag Expo the question regarding winter injury to alfalfa kept coming up. The question was made in association with the existing weather conditions this fall/winter season. Predicting winter injury levels to alfalfa stands is hard to do. Many factors affect the ability of the plant to survive for 5 months and then rapidly initiate new growth in the spring.

Survival and high production of an alfalfa stand begins with an understanding of root reserves. Alfalfa is a perennial forage crop. Alfalfa leaves use sunlight to produce sugars and starches. These carbohydrates are used by the plant to support new growth. Levels of carbohydrates quickly exceed the need for regrowth and excess amounts are transported to the tap root and stored for future regrowth. This regrowth may come during the growing season following mowing or in the spring. Management that maximizes root reserve levels at the onset of cooler temperatures and shorter days in the fall sets the stage for optimizing alfalfa stand survival in the spring.

Winter survivability is influenced by many factors:

- **Stand Age**. Younger stands are more stress tolerant and have lower levels of disease incidence and less physical damage.
- **Soil Fertility**. Stands with high levels of potassium (K) are less likely to experience winter injury than stands grown on low fertility. K is vital for carbohydrate movement to the tap root. K levels must be present before the fall rest period. Topdressing in October/November is too late for optimum conditions. Soil pH above 6.5 is preferred.
- **Soil Moisture**. Most winter injury is actually caused by the plant drying out. High soil moisture levels increase freezing and thawing cycles which "heave" the crowns out of the soil. This heaving tears roots off and exposes the crown to cold drying winds.
- **Cutting Management**. The shorter the interval between cuttings during the growing season, the greater the risk of winter injury. This is related to the total amount of excess carbohydrates that are translocated to the roots. Similarly a fall harvest forces the plant to use stored reserves to initiate new growth. If growing conditions following this harvest do not allow reserves to be replenished the plant enters the long winter period at a more at risk stage.

This March - Check Your Fields

To determine the extent of winter injury to your stands, check all alfalfa fields when temperatures begin to warm up and legumes and grasses begin to regrow.

- Look over the entire stand to get a feeling of uniformity or unevenness.
- Look closely at several sites in each field.
- Observe buds, shoots, crows and roots. Look for bright green shoots and healthy buds and firm white roots.
- Check stands more than one time. Plants may green up and then later die off. Other stands may develop more slowly.

Stem counts are used to evaluate yield potentials of alfalfa stands. Make a frame of wire one foot square. Toss the frame into a stand and then count the number of stems within this square foot area. Stands with greater than 55 stems/ft^2 will have highest yield potential. Stands with 40

to 55 stems/ft^2 will have a yield loss and stands with less than 40 stems/ft^2 should be considered for rotation.

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Forages

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Statewide Events

Pennsylvania Grazing Conference and Hay & Silage Conference, Holiday Inn, Grantville, PA, February 22-23, Contact: Richard Hann (717) 832-0127.

Pennsylvania Corn, Soybean, and No-Till Conference, New Cumberland Holiday Inn, January 27, Contact: Greg Roth (814) 863-1018.

Pennsylvania No-Till Alliance Educational Conference, Ramada Inn Conference Center, 1450 S Atherton St, State College, PA, March 15, Contact: Susan Parry, 717-948-6633 or Sjoerd Duiker, 814-863-7637

Professional Pest Managers School, Eden Resort, Lancaster, March 14, Contact: Mark Goodson (717) 840-7408.