

Soybean Rust is on the Horizon Be Prepared to Scout, Assess and Plan for Management

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Editor's Note: Geisler has been preparing for an outbreak of Soybean Rust in the United States for a couple of years. He toured the soybean producing areas of Brazil to learn how South American producers were coping with it and has become one of America's leading authorities on this new threat. The following information is taken verbatim from an article which appeared in a recent University of Nebraska Crop Watch Newsletter.

Soybean rust is a serious foliar disease causing millions of dollars of yield loss in soybean production areas around the world. In November 2004 it was first detected in the United States and since then has been identified in several southeastern states. The disease is not expected to have overwintered at all the sites identified last fall. The first U.S. case of soybean rust to have overwintered was reported in Florida the week of March 1. This, if it is the only location of overwintering, will supply the needed initial inoculum for the disease to spread and develop over the U.S. soybean crop.

Soybean rust, also referred to

as Asian soybean rust, is caused by *Phakopsora pachyrhizi* and is an aggressive pathogen that has spread in the past 10 years from Asia to Zimbabwe, South Africa, Paraguay, Brazil, and now the United States. Yield losses can be severe and have ranged from 10% to 80% of a field. In the last few years, Brazilian soybean producers have been significantly affected by soybean rust. In 2002-2003 they spent \$600 million for fungicide applications and in 2003-04 it's estimated they spent more than \$1 billion. USDA estimates U.S. losses could be in the range of \$640 million to \$1.3 billion in the first year and \$240 million to \$2 billion in subsequent years, depending on the severity and extent of spread.



This two-sided card, Identifying Soybean Rust, is available from the extension office or online.

I want to make note of a key point: This disease is manageable. U.S. producers will adapt to the needed management and our soybean crop will continue to be strong.

Symptoms

Soybean rust symptoms start in the lower canopy and are most commonly observed on the leaves. Lesions also can develop on petioles, pods and stems. Symptom development occurs rapidly once pod set occurs and can result in significant levels of defoliation under favorable environmental conditions. Lesions first appear as small yellow and irregularly shaped spots. As the disease progresses, lesions enlarge to 1/16- to 1/12-inch in diameter and are tan to dark reddish brown. Within each lesion are a few to several volcano-shaped uredinia (spore-producing structures). These features can only be seen under magnification (20X recommended). As rust severity increases, plants prematurely lose their leaves and commonly mature early. Lesions from soybean rust can appear similar to other foliar diseases of soybean and can be confused with brown spot and bacterial pustule. See *Identifying Soybean Rust* (Cooperative Extension EC05-1892) for more information. This I.D. card is available from local Cooperative Extension offices or online at www.aphis.usda.gov/lpa/issues/sbr/SBR_IDcard_11-04.pdf (TD)



Backlit soybean leaf showing severe soybean rust. (Brazil February 2005)

Soybean Rust Information on Lancaster Extension Web Site

The University of Nebraska Cooperative Extension in Lancaster County Web site has extensive information about soybean rust. Go to lancaster.unl.edu/ag and click on the Crops button and then on Crop Diseases. There are links to research-based information on identification, treatment and control, newsletter articles and Cooperative Extension publications. As the season progresses, this site will be continuously updated with the latest information.

Pioneer Farm Award Nominations Due May 1

The Knights of Ak-Sar-Ben Foundation and the Nebraska Association of Fair Managers are accepting nominations for the 50th annual Nebraska Pioneer Farm Awards. The program honors farm families in Nebraska whose land has been owned by members of the same family for 100 years or more. Each honoree receives an engraved plaque and gatepost marker as permanent recognition of this milestone.

If your family has owned your farm in Lancaster County for 100 years or more, consecutively, you are eligible to apply for the Nebraska Pioneer Farm Family Award. Nomination forms can be obtained by calling Deanna Karmazin at Lancaster County Extension at 441-7180 or by writing the Ak-Sar-Ben Pioneer Farm awards, 302 South 36 Street, Suite 800, Omaha, NE 68131. Applications must be received by the extension office or the Lancaster Event Center no later than May 1. Winners will be notified no later than June 1 and the award will be presented during a special ceremony at the 2005 Lancaster County Fair.

To date, over 6,000 families in 93 Nebraska counties have been honored at various county fairs. If you have any further questions regarding this award, please call the Knights of Ak-Sar-Ben office at (402) 554-9600, extension 100.

Effect of Increasing Energy Prices on Farming Costs

Tom Dorn
Extension Educator

Farm-delivered diesel prices increased from \$0.90 per gallon in the spring of 2003 to \$1.30 per gallon in the spring of 2004 to \$1.65 in the spring of 2005. What effect does this have on production costs?

To answer this question, one needs fuel consumption estimates for farm operations. If you routinely track fuel use for various tractors and combines while performing farming operations, you probably already have the information you need. Simply multiply your historical fuel consumption by the former price per gallon and by current price and compare.

Most folks don't track fuel consumption by field operation and need a research-based fuel use estimate to compute the effect a rise in price will have on overall production costs. A good reference that lists fuel use estimates is the "Minnesota Farm Machinery Economic Cost Estimates" (see footnote for Web site information). Using the fuel consumption estimates presented in the Minnesota publication, the fuel consumption estimate per hour for power units is presented in Table 1 and the estimate of fuel consumption per acre for field operations is presented in Table 2. Note: implements with a wider swath width require more horsepower overall but the horsepower hours per acre covered and, therefore, the fuel consumption per acre remain unchanged.

Table 1. Fuel costs per hour.¹

	Estimated Fuel, Gal/hr	2003 Cost/hr @ \$0.90/gal	2004 Cost/hr @ \$1.30/gal	2005 Cost/hr @ \$1.65/gal	2003-2005 Increased fuel cost, \$/hr
Tractors					
40 HP	1.8	\$1.62	\$2.34	2.90	\$ 1.28
60 HP	2.6	\$2.34	\$3.38	4.36	\$ 2.02
75 HP	3.3	\$2.97	\$4.29	5.44	\$ 2.47
105 HP MFWD	4.6	\$4.14	\$5.98	\$ 7.62	\$ 3.48
130 HP MFWD	5.7	\$5.13	\$7.41	\$ 9.44	\$ 4.31
160 HP MFWD	7.0	\$6.30	\$9.10	\$11.55	\$ 5.25
200 HP MFWD	8.8	\$7.92	\$11.44	\$14.52	\$ 6.60
225 HP MFWD	9.9	\$8.91	\$12.87	\$16.34	\$ 7.43
260 HP 4WD	11.4	\$10.26	\$14.82	\$18.88	\$ 8.62
310 HP 4 WD	13.6	\$12.24	\$17.68	\$22.51	\$10.27
360 HP 4 WD	15.8	\$14.22	\$20.54	\$26.14	\$11.92
425 HP 4 WD	18.7	\$16.83	\$24.31	\$30.86	\$14.03
Combines					
190 HP	8.4	\$7.56	\$10.92	\$13.86	\$ 6.30
220 HP	9.7	\$8.73	\$12.61	\$15.97	\$ 7.24
275 HP	12.1	\$10.89	\$15.73	\$19.97	\$ 9.08

Table 2. Fuel costs per acre for field operations.¹

Field Operation	Estimated Diesel gallon/acre	2003 Cost/acre @ \$0.90/gal	2004 Cost/acre @ \$1.30/gal	2005 Cost/acre @ \$1.65/gal	2003-2005 Increased fuel cost \$/ac
Tillage					
Field Cultivator	0.33	\$0.30	\$0.43	\$0.54	\$0.24
Tandem Disk	0.47	\$0.42	\$0.61	\$0.78	\$0.31
Tandem Disk (HD)	0.76	\$0.68	\$0.99	\$1.25	\$0.57
Planting Equipment					
Row Crop Planter	0.34	\$0.31	\$0.44	\$0.56	\$0.25
Minimum Till Planter	0.53	\$0.48	\$0.69	\$0.87	\$0.39
Grain Drill	0.49	\$0.44	\$0.64	\$0.81	\$0.37
Presswheel Drill	0.63	\$0.57	\$0.82	\$1.04	\$0.47
No-till Drill	0.81	\$0.73	\$1.05	\$1.34	\$0.61
Crop Maintenance Equipment					
Cultivator	0.46	\$0.41	\$0.60	\$0.76	\$0.35
Rotary Hoe	0.18	\$0.16	\$0.23	\$0.30	\$0.14
Boom Sprayer	0.11	\$0.10	\$0.14	\$0.18	\$0.08
Anhydrous Applicator	0.55	\$0.50	\$0.72	\$0.91	\$0.41
Stalk Shredder	0.74	\$0.67	\$0.96	\$1.22	\$0.55
Harvesting Equipment					
Mower conditioner	0.40	\$0.36	\$0.52	\$0.66	\$0.30
Hay Swather	0.35	\$0.32	\$0.46	\$0.58	\$0.26
Hay Baler PTO (twine)	0.40	\$0.36	\$0.52	\$0.66	\$0.30
Round Baler (1500 lb)	0.77	\$0.69	\$1.00	\$1.27	\$0.58
Combine (various heads)	2.00	\$1.80	\$2.60	\$3.30	\$1.50

¹ Fuel consumption information in Tables 1 and 2 taken from "Minnesota Farm Machinery Economic Cost Estimates" (FO-6696), by William Lazarus, University of MN and Roger Selley, University of Nebraska. Links to the 2000, 2001, 2003 and 2004 versions of this publication can be found on the Lancaster County Extension Web site - Machinery Page at lancaster.unl.edu/ag/crops/machine.htm