CAPS Survey Report

Year:	2016		
State:	Kansas		
Cooperative Agreement Name:	Flag Smut Survey		
Cooperative Agreement Number:	16-8420-2013-CA		
Project Funding Period:	May 17, 2016 – April 16, 2017		
Project Report:	CAPS Survey Report		
Project Document Date:	May 17, 2016 – September 30, 2016		
Cooperators Project Coordinator:	Laurinda Ramonda		
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Quarterly Report	
Semi-Annual Accomplishment Report	
Annual Accomplishment Report	

A. Write a brief narrative of work accomplished. Compare actual accomplishments to objectives established as indicated in the work plan. When the output can be quantified, a computation of cost per unit is required when useful

Participants: Laurinda Ramonda –supervision and shipping of samples to lab Gaelle Hollanbeck – state plant pathologist, assist in identification and sampling Jon Appel – seasonal staff – survey work

- May 19, 2016 Pre-award letter signed for \$10,000
- May 17, 2016 Survey work began
- June 17, 2016 Full funding cooperative agreement signed for \$10,000
- June 10, 2016 Survey work complete

Funding Amount (USDA)	Funding Amount (KDA)	Total Number of Visuals	Cost Per Unit
Proposed = \$10,000	Proposed = \$0	Proposed = 98	Proposed= \$102.04
Actual = \$10,000	Actual = \$0	Actual = 104	Actual = \$96.15

1. <u>Survey methodology (trapping protocol)</u>:

	Common Name	Scientific Name	
Pest:	Flag Smut	Urocystis tritici	

	Proposed	Actual		
Sites (Locations):	98	104		

	Proposed	Actual
Number of Counties:	21	24
Counties:	Stafford, Pratt, Kiowa,	Barber, Barton, Clay, Decatur,
	Edwards, Pawnee, Barton,	Dickinson, Edwards, Ellis,
	Rush, Lincoln, Russell,	Geary, Graham, Kiowa, Lincoln,
	Dickinson, Ottawa, Ellis,	Ness, Norton, Pawnee, Phillips,
	Trego, Graham, Rooks,	Pratt, Rooks, Rush, Russell,
	Phillips, Smith, Ness,	Scott, Smith, Stafford, Trego,
	Wichita, Scott, Decatur	Wichita

2. <u>Survey dates</u>:

	Proposed	Actual		
Survey Dates:	May 2016 – June 2016	May 17, 2016 – June 10, 2016		

3. <u>Benefits and results of survey</u>:

	Positive	Negative	Total Number
Visual (number of acres)	1,320	8,165	9,485

2016 FLAG SMUT (Urocystis tritici) ASSESSMENT OF 2015 PRODUCTION FIELD LOCATIONS AND SURVEY OF WHEAT PRODUCTION IN CENTRAL AND WESTERN KANSAS: Final Report

Contract number 1871: Agreement between Kansas Department of Agriculture and Jon A. Appel June 12, 2016

Prepared by Jon A. Appel

Background: Flag Smut (*Urocystis tritici*) also known as *Urocystis agropyri*, reemerged in Kansas wheat production in 2015. Flag smut was observed by Dr. Erick DeWolf, Kansas State University Extension Wheat Pathologist, at a demonstration plot in Rooks County (NC) in early May of 2015. Incidence in that plot ranged from 15-20% severity for individual varieties. USDA scientists confirmed the disease from the Rooks County samples.

The last previous report of the disease infecting wheat in a Kansas field had been made in the 1930's. Laboratory spore wash surveys conducted by the Kansas Department of Agriculture in 2004-5 suggested the disease was present either on wheat or closely related grasses after consultation with USDA scientists.

Kansas Department of Agriculture and USDA-APHIS-PPQ officials had concerns regarding flag smut. Some foreign countries that import US wheat had flag smut plant health requirements. The observation that the disease had the ability to reach significant incidence levels in the demonstration plot triggered another alarm therefore a widespread survey was initiated to detect and measure the amount of flag smut in production areas. A survey was conducted in western, central, and on a limited basis in eastern Kansas. Over 600 observations were made during survey or in investigations by teams of KDA and USDA personnel. The survey found 5.7% of the production field locations to have the disease primarily in the central corridor of Kansas but also in west central Kansas. Incidence at these locations were generally well below 0.5% of the tillers.

The Kansas Department of Agriculture and the Extension Service at Kansas State University along with various stakeholders took steps during the summer of 2015 to reduce the risk or spread of flag smut for the fall planted crop of that year.

These steps included contacting individual landowners and tenants where flag smut was found and offering best management practices for control of the disease.

Goals of the study:

The goals of this study included the following:

- 1. Visit 2015 flag smut production fields and ascertain whether landowners and tenants from the outreach efforts followed the best management practices.
- 2. Delimit 2015 positive counties or areas where the disease was known and see if additional fields may be infested.
- 3. Collect data and samples where the disease was found in 2016 for Kansas Department of Agriculture analysis.
- 4. On a limited basis, survey counties where flag smut was not found but because upon their geographic location or other history may be at a higher probability to have the disease established in fields.

Results:

The survey was conducted between May 18 and June 10, 2016. Wheat was at the soft dough to physiologically mature stage.

Counties included in the survey: Stafford, Pratt, Kiowa, Edwards, Pawnee, Barton, Rush, Lincoln, Russell, Dickinson, Clay (substituted for Ottawa because of lack of wheat and poor road conditions), Ellis, Trego, Graham, Rooks, Phillips, Smith, Ness, Wichita, Scott, and Decatur with a total of 104 locations.

County records: Three presumptive county records were made during the study. Clay County in north central Kansas – this record was from a delimiting survey of a Dickinson county field near Clay and Ottawa counties. The positive field was on the Clay side of the Ottawa Clay county line about 2 miles west of Longford. Pawnee County in south central Kansas had a presumptive positive southeast of a Rush County 2015 positive location that was on the south county line. The field was a couple of miles south and a few miles east of the 2015 Rush field. Decatur County presumptive positive was northwest of Norcatur in the southeast corner of the county. The field was a few miles east of a certified seed grower operation. The county had previous suspect flag smut spore wash concerns. It is also of special note that another county record was made in Ellsworth County of May 2016 by staff of the Plant Protection and Weed Control Program, KDA.

Follow up on 2015 production locations: Twenty six locations of the twenty eight production fields were visited. The two locations not included were those of a certified seed dealer in Pratt County who was in known management of the disease. Of the twenty six locations, only <u>one</u> was found with flag smut. This location was in Stafford County. One other Pratt location had wheat but no observable disease. Field observations suggested that this field may have been seed treated. <u>The vast majority of 2015 positive fields were out of production</u>. A few fields (noted on data sheets) could not be determined which side of the 2015 coordinates where the field was

located. In those locations, any wheat nearby was observed. Flag smut was not found in those fields or the field was not in planted wheat.

The conclusion was that the outreach efforts were effective in getting specific fields with flag smut managed for the disease. The work done in Rooks County was most notable regarding the original detection, related tenant locations, and other locations. Rooks County was the hot zone in 2015 but not in 2016.

New production fields and overall levels of disease:

In addition to the three new presumptive county records/locations, additional production fields were located in Pratt (1), Barton (1), Rush (3), Ellis (2), Trego (1), Rooks (1), Smith (1), and Scott (1). The Rush County area was particularly concerning since three out of three fields were positive and nearby Ellis and Pawnee fields were positive for a total of five out of five fields.

In all fifteen fields were found with the disease out of 104 fields visited. The percentage of 2015 flag smut production field was calculated at 5.7% and 2016 percentage of fields infested was markedly higher to 14% (11 of 78 fields). The increase in percentage of fields was attributed to the specific counties targeted in this assessment where the disease was known to occur as opposed to widespread survey of 2015. The single new finds per county basis are similar to 2015 except for the Rush County concern already expressed.

In 2016, incidence within fields were consistent with the majority of field observations in 2015 below 0.01%.

Summary and Conclusion:

- Flag smut has recurred in Kansas in 2016 at similar levels in 2015 for known infested counties.
- The hot zone for flag smut in 2016 was centered on Rush County with nearby observations in Pawnee and Ellis counties.
- Outreach activities by Kansas Department of Agriculture, Kansas State University Extension Service, and stakeholders enabled landowners and tenants to effectively manage the disease. These activities though did not remove the disease from the area as new production locations were located within several known counties or areas of production.



Kansas Department of Agriculture Survey – All sites

4. Database submissions:

Data Entered in NAPIS

Pest Common	Pest Scientific	Survey Method	Counties	Positives	Negatives	Total
Flag Smut	Urocystis tritici	Visual;Count Unspecified Number;Diagonal	24	1,320 (acres)	8,165 (acres)	9,485 (acres)



- B. If appropriate, explain why objectives were not met.*
- C. Where appropriate, explain any cost overruns or unobligated funds in excess of \$1,000.

*indicates information is required per 7 CFR 3016.40 and 7 CFR 3019.51

Approved and signed by

Cooperator

Date: _____10/24/16 ______

Date:

ADODR