

CAPS Survey Report

Year:	2011
State:	Louisiana
Cooperative Agreement Name:	Citrus Commodity Survey
Cooperative Agreement Number:	11-8434-0990-CA
Project Funding Period:	January 1, 2011 through December 31, 2011
Project Report:	CAPS Survey Report
Project Document Date:	December 31, 2011
Cooperators Project Coordinator:	State Survey Coordinator (SSC)
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Quarterly Report	<input type="checkbox"/>
Semi-Annual Accomplishment Report	<input type="checkbox"/>
Annual Accomplishment Report	<input checked="" type="checkbox"/>

- 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.

The Louisiana Department of Agriculture and Forestry (LDAF) entered into a Cooperative Agreement with the United States Department of Agriculture (USDA), Animal Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ) in 2011 to conduct a visual survey for 12 Citrus Commodity Pests. LDAF conducted this survey according to survey guidelines set forth by the USDA, APHIS, PPQ in 2011. LDAF's Agriculture and Environmental Science (AES) division is divided into 7 districts across the state and 4 of those districts located in citrus producing parishes were utilized to conduct this survey. LDAF AES inspectors conducted this survey in 23 parishes. The inspectors concentrated on surveying citrus trees in the Spring and citrus Fruit in the Fall. There were 50 inspections performed in the Spring and 40 inspections performed in the Fall. LDAF AES Horticulture and Quarantine staff conducted a blitz operation in January of 2011 in East Baton Rouge parish for the purpose of targeting sweet orange scab from retail outlets. There were 16 locations inspected during this blitz, of which, 14 samples were submitted to Dr. Craig Webb's laboratory (0595) at Kansas State University. One sample came back positive for sweet orange scab and Mr. Bill Spitzer (SPHD, PPQ) forwarded this information to SITC representatives to perform a trace back inspection on this fruit. Ultimately, the fruit was traced back to a source in Texas. There were 49 samples submitted to Louisiana State University (LSU) taken from 37 inspection sites throughout the year. Dr. Nick Singh of LSU conducted the initial screening of these samples and a few were forwarded to PPQ laboratory in Beltsville, Maryland but all were negative for the targeted pests.

Funding Amount	Total Number of Traps	Cost Per Unit
Proposed = \$29,200.00	Proposed = n/a	Proposed= n/a
Actual = \$36,500.00	Actual = n/a	Actual = n/a

1. Survey methodology (trapping protocol):

	Common Name	Scientific Name
Pest:	Citrus Black Spot	<i>Guignardia citricarpa</i>
	Sweet Orange Scab	<i>Elsinoe australis</i>
	Fruit Piercing Moth	<i>Eudocima fullonia</i>
	Passion Vine Mealy Bug	<i>Planococcus minor</i>
	Spiny Black Fly	<i>Aleurocanthus spiniferus</i>
	Citrus Weevil	<i>Diaprepes abbreviatus</i>
	Chili Thrips	<i>Scirtothrips dorsalis</i>
	Asian Citrus Psyllid	<i>Diaphornia citri, kuwayama</i>
	Citrus Canker	<i>Xanthomonas axonopodis pv. Citri</i>
	Citrus Greening (African Strain)	<i>Liberibacter spp.</i>
	Citrus Greening (Asian Strain)	<i>Liberibacter spp.</i>
	Citrus Variegated Chlorosis Strain	<i>Xylella fastidiosa</i>

	Proposed	Actual
Sites (Locations):	80	106
Traps:	n/a	n/a

Number of Counties:	23
Counties:	<i>Acadia, Allen, Ascension, Beauregard, Calcasieu, East Baton Rouge, Iberia, Jefferson, Jefferson Davis, Lafayette, Lafourche, Livingston, Orleans, Plaquemines, Pointe Coupee, St. John the Baptist, St. Martin, St. Mary, St. Tammany, Tangipahoa, Terrebonne, Vermilion, Washington.</i>

2. Survey dates:

	Proposed	Actual
Survey Dates:	January 1, 2011 to December 31, 2011	January 1, 2011 to December 31, 2011

3. Benefits and results of survey:

	Positive	Negative	Total Number
Traps	n/a	n/a	n/a

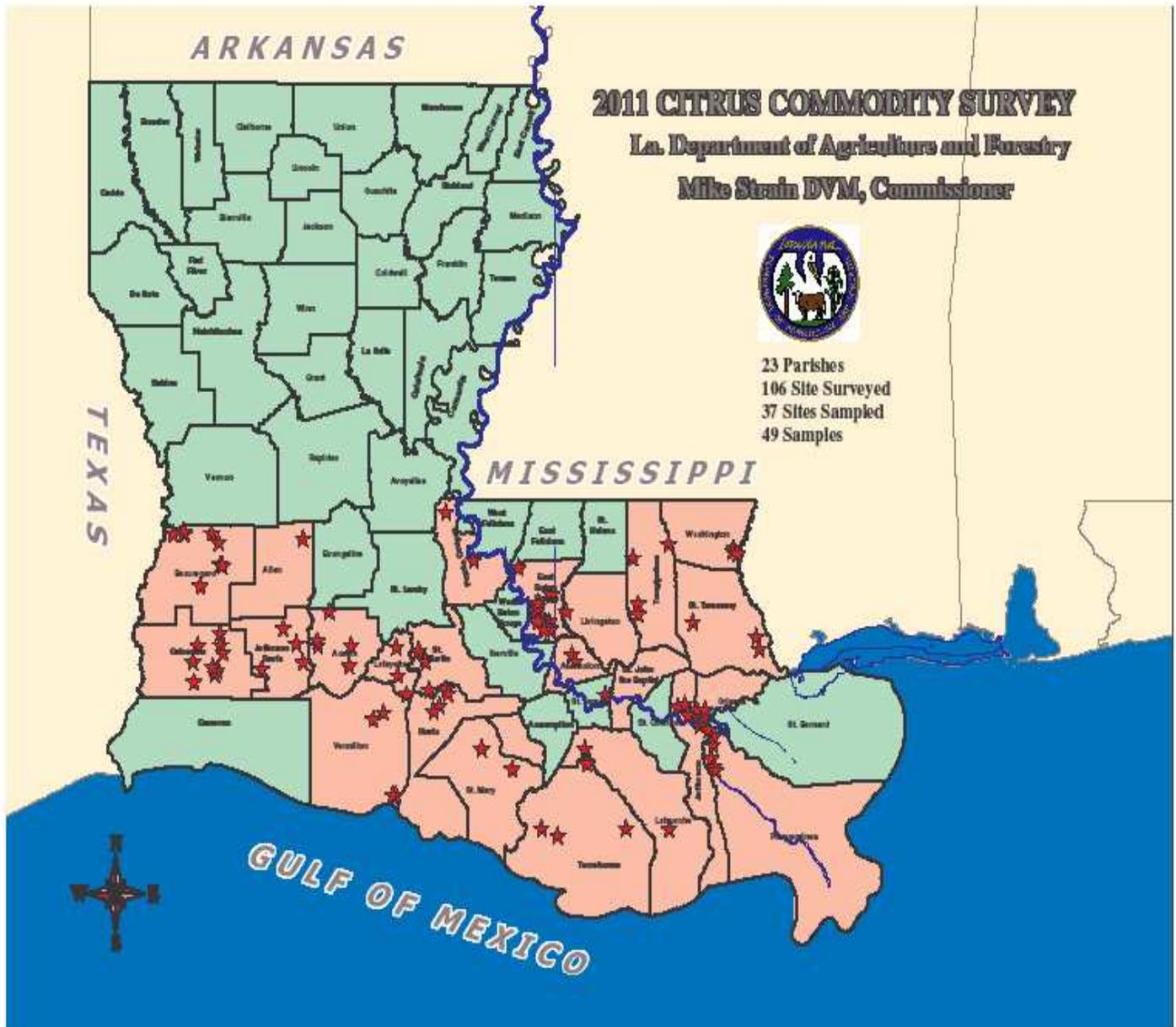
4. Database submissions:

All survey data was entered into the NAPIS database on January 17, 2012 by J. Brett Laird (SSC, Louisiana). Survey data will also be entered into the IPHIS database by Karen Jenkins (PSS, Louisiana).

B. If appropriate, explain why objectives were not met.

All objectives set forth in the proposal were exceeded in this survey performed by LDAF. The SSC coordinated a training for LDAF AES inspectors on November 3, 2011 at the LSU Agcenter Research Station in Hammond, Louisiana. LSU has a large grove of citrus trees at the research station and Dr.'s Bobby Fletcher, Natalie Hummel and Don Ferrin were there to give lecture both in class and out in the field. The training was exceptional for the inspectors because they got to visually see Asian Citrus Psyllid and other known insects and diseases in the grove.

C. Where appropriate, explain any cost overruns or unobligated funds in excess of \$1,000. LDAF spent \$8,781.00 in excess of the Cooperative Agreement awarded in 2011. This cost overrun was due in part to a significant amount of phone calls from concerned residential citrus tree owners. Each phone call resulted in an inspection.



***Below is a copy of Dr. Singh’s final report for citrus work performed by LSU in 2011:

Citrus Insect and Disease Survey Final Report

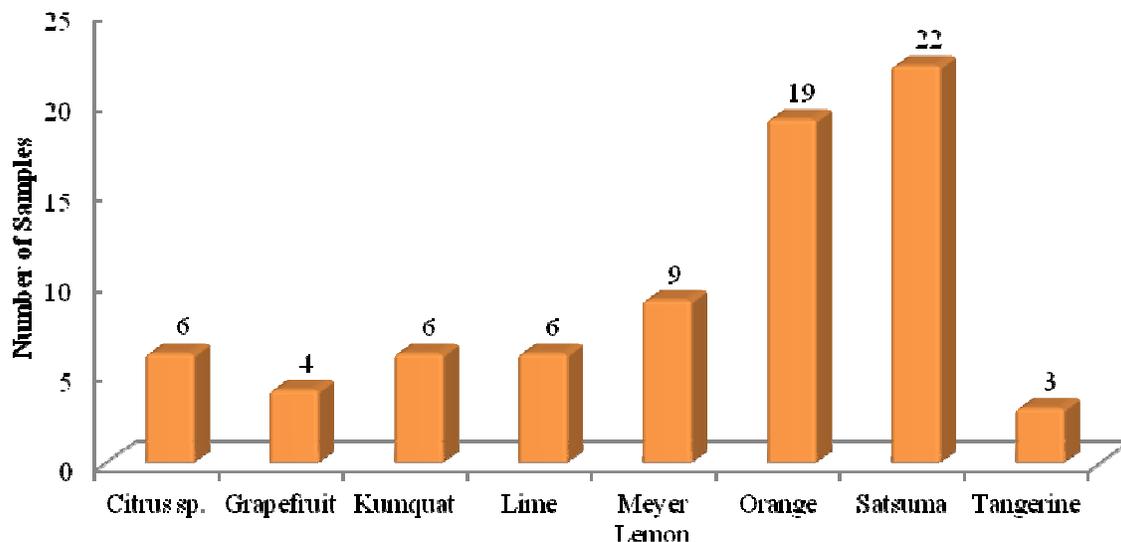
PI: Dr. Raghuwinder Singh

Co PI: Drs. Don Ferrin and Natalie Hummel

During the 2011 Citrus Insect and Disease Survey the LSU AgCenter Plant Diagnostic Center received 75 samples. Samples were collected by LDAF Inspectors and LSU AgCenter County Agents and delivered to the Diagnostic Center. Samples consisted of foliage and/or fruits and Dr. Singh processed them using the most appropriate diagnostic method.

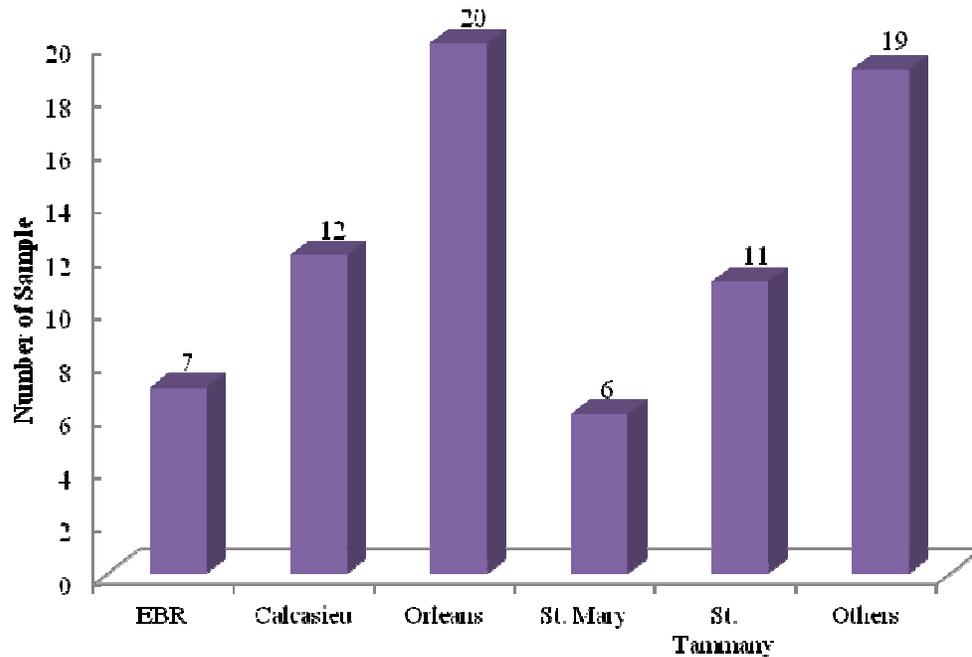
A. Citrus Variety:

The samples were categorized into eight varieties of citrus including, citrus sp., grapefruits, kumquats, limes, lemons (meyer), oranges, satsumas, and tangerines. The majority of samples were satsumas (22) followed by oranges (19), meyer lemons (9), citrus sp. (6), kumquats (6), limes (6), grapefruits (4), and tangerines (3). The oranges consisted of blood orange (2), mandarin orange (1), navel orange (6), orange (2), and sweet orange (8). The limes consisted of 4 limes, 1 key lime, and 1 Persian lime.



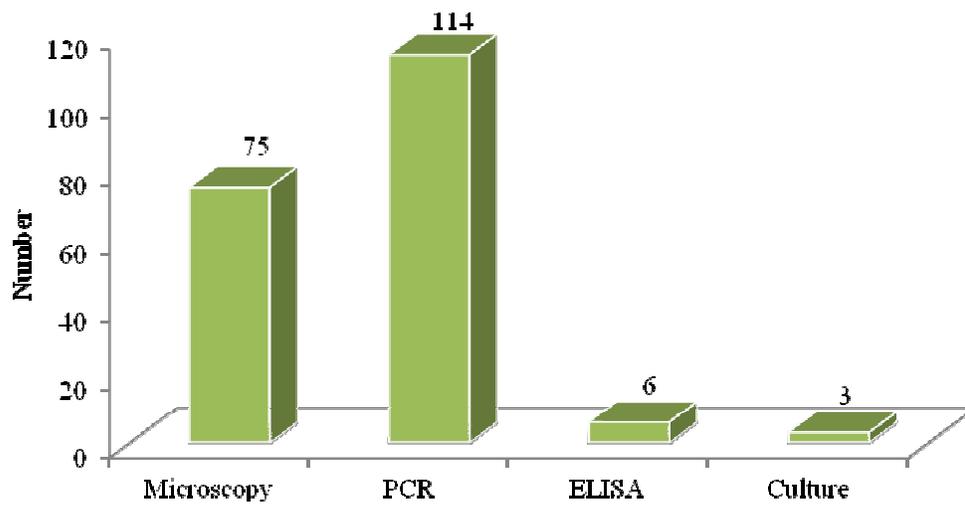
B. County Sample Submission:

The samples came from 14 counties and 74% of these were submitted from five counties with majority of samples from Orleans (20) followed by Calcasieu (12), St. Tammany (11), East Baton Rouge (7), and St. Mary (6). Others consisted of 26% of the samples and came from 9 counties including, Acadia (3), Allen (3), Plaquemines (3), Beauregard (2), Jefferson (2), Livingston (2), St. James (2), Tangipahoa (1), and Vermilion (1).



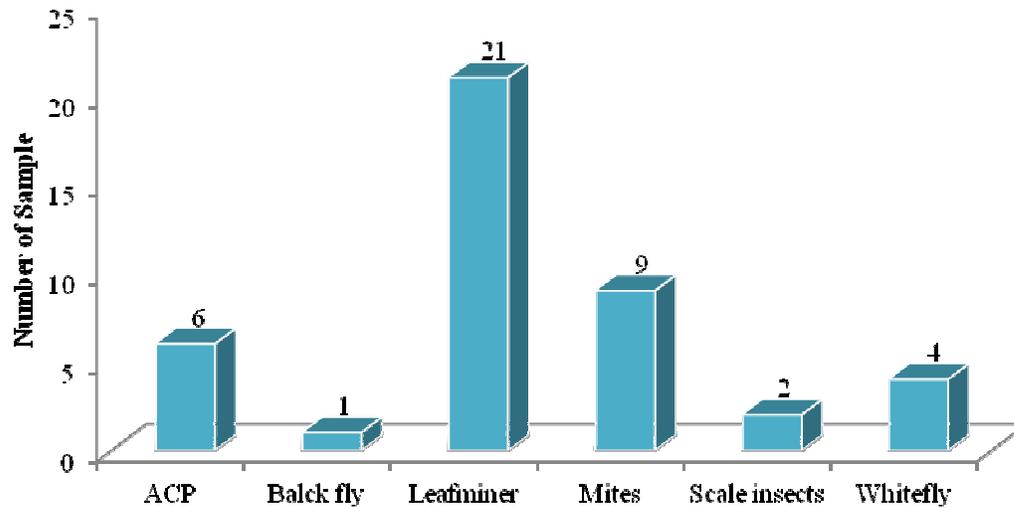
C. Diagnostic Method:

Based on the symptoms observed and client's request the samples were subjected to the most appropriate diagnostic technique including, microscopy, culture isolation, and polymerase chain reaction (PCR). All samples were examined under the dissecting microscope. PCR was used to diagnose 48 samples, followed by 18 microscopic determinations, 6 ELISAs, and 3 cultural isolations. A total of 114 PCRs were conducted to determine two strains of citrus greening and sweet orange and citrus scab.



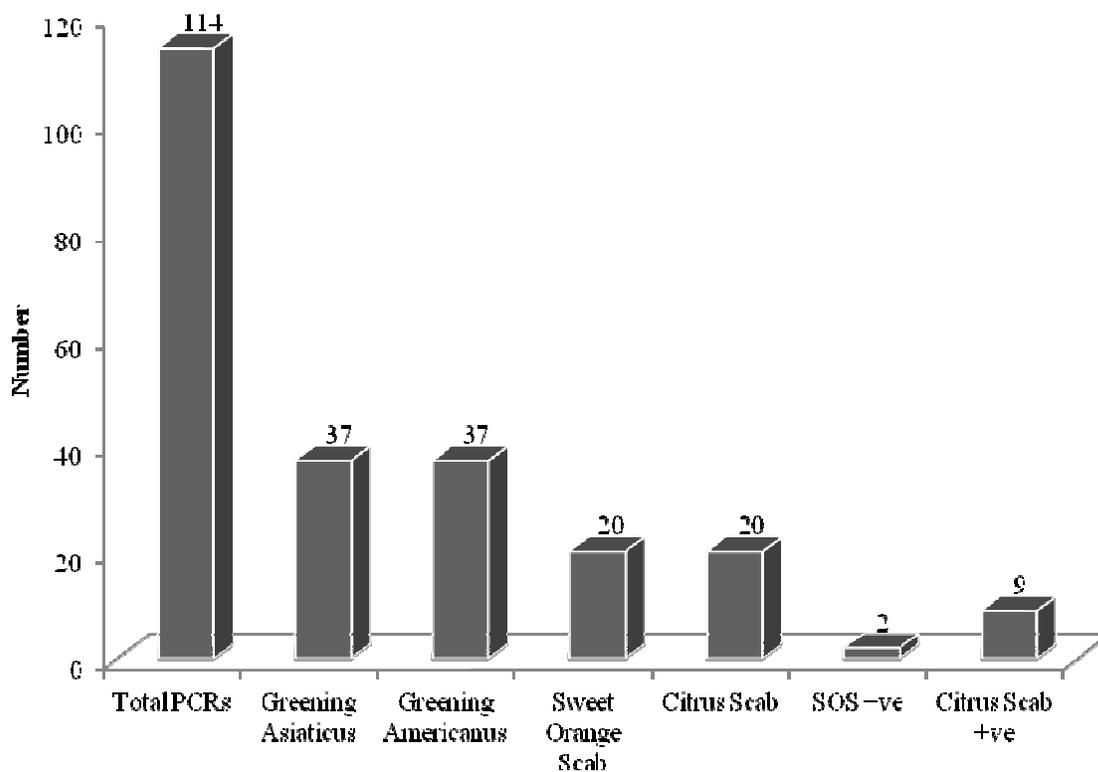
C1. Insect species:

All samples were examined under a dissecting microscope to determine the presence of Asian and African citrus psyllid, brown citrus aphid, chili thrips, citrus longhorn beetle, citrus weevil, fruit piercing moth, glassy winged sharp shooter, Japanese wax scale, lobate lac scale, passion vine mealybug, spiny black fly, and white wax scale. None of the insect species listed above were found except Asian citrus psyllids (ACP) were found on 6 samples. All 6 samples were tested for citrus greening and were negative for both strains. Other insects found on the samples included citrus leafminer (21), mites (9), whitefly (4), scale insects (2), and black fly (1).



C2. Disease Diagnosis:

Samples were examined for citrus black spot, citrus canker, citrus greening, citrus tristeza, citrus variegated chlorosis, and sweet orange scab. Based on the symptoms and client's request, samples were subjected to serological or molecular diagnostic methods. No signs and/or symptoms of citrus black spot, citrus tristeza, and citrus variegated chlorosis were observed. Six samples were tested for citrus canker using enzyme linked immunoassay and all were negative. Forty PCRs were conducted to test 20 samples for sweet orange scab and citrus scab. Two and 9 samples were positive for sweet orange and citrus scab, respectively. Out of the total 75 samples, 31 samples were submitted to detect citrus greening. In addition, out of the 31 samples, 6 were infested with Asian citrus psyllid and tested for citrus greening. A total of 74 PCRs were conducted to detect both asiaticus and americanus strains of citrus greening. All 31 tissue and 6 psyllid samples were negative for both strains of greening.



D. Disease ID Card

Disease ID cards describing the sweet orange scab and citrus scab were produced to disseminate information about these diseases. A total of 10,000 ID cards were produced and distributed to LDAF, 64 LSU AgCenter County offices, and 20 research station in Louisiana.



E. Student Worker

A student worker was hired at \$10 per hour rate to help prepare the samples for diagnostics.

F. Equipment Purchase

A Gel Documentation system was purchased for \$10,000. The Gel Doc is used to take pictures of the gel to document the results of the samples which are diagnosed using polymerase chain reaction.

G. Supplies

Supplies related to diagnostic methods (ELISA Kits, PCR reagents, Gel electrophoresis supplies, etc.) were also purchased to accommodate accurate and rapid diagnostic results.