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Servi-Tech Review

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Review Contributors Improving Efficiency in the Laboratories


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 by Steve Harrold
Technical Coordinator; Dodge City, KS

The increase in precision soil sampling has provided our laboratories with the opportunity to analyze more soil samples during the busiest months of the soil testing calendar. In reality, this means analyzing more soil samples during the same time-frame. In order to meet this demand without sacrificing turn-around time or data quality during our peak periods of laboratory testing, we have recently invested in new autosampler technology to keep pushing the samples through the labs. These high speed autosamplers, manufactured by Elemental Scientific Inc. (ESI), are designed to deliver the extract solution quickly and efficiently to our inductively coupled plasma (ICP) spectrometers. One ESI autosampler, called the SC-FAST, is now being used at our Hastings and Amarillo laboratories, while plans are being made to purchase a third autosampler at the Dodge City laboratory within the next year.

The ESI is different from previous autosamplers, it very quickly loads the solution into a sample loop using a vacuum pump and then delivers it to the instrument through the use of a switching valve and peristaltic pump. The system has the added benefit of reducing the potential for carryover from one sample to the next by rinsing the sample line with a carrier solution while the instrument is still reading the previous sample. The addition of this high speed ESI autosampler and the replacement of an old instrument with the purchase of a new ICP spectrometer have allowed the Hastings laboratory to increase its capacity for soil analysis from approximately 280 to 460 samples per hour. In the Amarillo laboratory, capacity has increased from approximately 160 to 290 samples per hour with the addition of the ESI. This new quick delivery system has effectively decreased ICP analysis times at these locations in a way that is much more cost effective than the alternative, which is the purchase of more ICP instruments.

**View graphs of the SC-FAST for SC-Autosamplers on pg. 4

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SC-FAST for SC-Autosamplers

A typical ICP-MS acquisition is made up of six time steps:

1. Autosampler movement – The time it takes from the ICP instrument sending the signal to the autosampler to move to the next sample and the sample probe actually entering the sample.
2. Uptake – The time it takes for a sample to be drawn up the autosampler probe to the peristaltic pump tubing and to the nebulizer.
3. Stabilization – Time is required to allow the plasma to stabilize after speed pumping and air (due to autosampler movement) is introduced to the plasma.
4. Measurement – Time required to obtain the best quality data for the analytes which are being analyzed.
5. Rinse – Time required to remove the previous sample from the sample tubing and sample introduction area.
6. Overhead – Time spent by the ICP performing calculations, and printing results, etc.



The FAST system integrated to the SC-2

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30 Year Award Winners



Kirk Rice, Orvin Bontrager, Mitch Counce

Kirk Rice, Goodland Division Manager; Weskan, KS.

Orvin Bontrager, Director of Education & Training; Aurora, NE.

Mitch Counce, General Manager; Dodge City, KS.

National Corn Growers Winners

Congratulations to Galen Pokorny of Pokorny Farms, Bellwood, NE, for winning 2nd place in the Ridge Till Irrigated Class in Nebraska with a yield of 277 bushels per acre.

Congratulations to Don Meysenburg of Meysenburg Farms, Bellwood, NE, for winning 3rd place in the Ridge Till Irrigated Class in Nebraska with a yield of 274 bushels per acre.

Both of these growers are long term Servi-Tech customers of Steve Kramer.

What is ESN?



by Jeff Kugler
Regional Manager; York, NE

In the past 3-4 years, there has been more interest by producers in using different sources of nitrogen to meet their crop needs. The reason for this is to increase nitrogen-use efficiency. One product that has been available is ESN which is a semi-permeable polymer membrane that is applied to urea fertilizer. The polymer coating controls the rate that nitrogen is released to the soil and the crop. As the soil warms, the membrane that coats the urea allows the water to enter and dissolve the urea, but nitrogen must then diffuse through the membrane and into the soil.

The thickness of the polymer coating varies resulting in different time-release of the urea fertilizer. This reduces the risk of leaching in early spring and allows for better utilization by the growing crop. At soil temperatures around 65 degrees Fahrenheit, the nitrogen releases over a 60-80 day period. When applied near planting time, the bulk of the nitrogen will be released 40-50 days later. This would be similar to a side-dress nitrogen application. In most cases this material may cost more per pound of nitrogen, but is another way of spreading your nitrogen risk. Under dry soil conditions, there would be little advantage to this slow release technology, but under wet soil conditions the technology would fit very well. Research studies from Iowa State University from 2003 to 2005 show a six bushel increase in yield compared to untreated urea.

To date ESN is not approved for fall application in Nebraska for row crops. So far ESN is approved for application anytime after March 1. University of Minnesota research shows fertilizer nitrogen recovery ranged from 37% for the 100-pound rate of ESN broadcast in the fall, and *not incorporated* to 99% and 74% when ESN was spring applied and *not incorporated* at the 60 and 100-pound nitrogen rates, respectively. This would suggest that spring application would be more efficient.

Consulting Service Investments



by Orvin Bontrager
Director of Education & Training; Aurora, NE

The obvious costs to maintain a professional crop consulting staff include competitive salaries, benefits, vehicles, and fuel.

Travel and expense to professional meetings and training sessions during the winter months cannot be neglected. As one becomes more experienced as a crop consultant, it is easy to become complacent and not maintain a vigorous education schedule. Meeting with other consultants and agronomists can't be overlooked to maintaining a top quality service.

These "costs" should be considered more of an investment to remain competitive in the advisory or consulting business. A top notch grower can pick up quickly when their advisor isn't giving new, updated, and timely information.

Computers, software, and information technology personnel are hidden costs that many don't fully consider when getting into more precision soil sampling and mapping. Top quality services require a premium price, but to get accurate information, shortcuts and inferior equipment cannot be used.

New Marketing Specialist



by Morgan Riekenberg
Marketing Specialist; Dodge City, KS

November 17, 2008, Morgan Riekenberg started as the new Marketing Specialist for Servi-Tech, Inc.


Morgan is a Dodge City native and graduated from Fort Hays State University; Hays, KS in 2007 with a B.S. in Communication Studies, specifically Public Relations and Advertising. She also competed for the Women's Track & Field team while attending Fort Hays.

Morgan also worked on many project campaigns in the downtown Hays Chestnut Street District, marketing the small, locally owned businesses. She hopes to carry out her campaign experiences with Servi-Tech, and create awareness and educate Dodge City as well as surrounding areas regarding the services Servi-Tech offers.

"I'm very excited to be a part of the Servi-Tech team, everyone has been a tremendous help as I am getting situated."

Morgan is located in the Dodge City office, she can be contacted at 620.227.7509 Ext. 1214 or morgan@servi-techinc.com.

Quarantine Soil & Plant Sample Guidelines

 by Nancy Jenny
Hastings Laboratory Manager; Hastings, NE

The Hastings lab recently went through a routine audit and inspection to continue receiving a permit to accept regulated Soil and Plant samples from clients. Permits are required if we have clients who send samples (soil or plant) to us from a foreign or domestic quarantine area. When such samples are received, there are certain protocols that must be followed to ensure that any disease or pests that may have been introduced to U.S. agriculture will not continue to spread. The procedures have not been so difficult in years past, but have now, however, become a logistical maze of regulations that have become very difficult and potentially costly to implement.

The list of regulated areas both inside and outside of the U.S. that have been tagged as a regulated or quarantined area, change daily. The permits are not issued to the lab or facility, they are issued to individuals. Nancy Jenny holds the permit for Hastings, Randy Royle holds the permit for Dodge City, and Todd Whatley holds the permit for Amarillo. The permit states that the individual is responsible for knowing where all quarantine areas are located, however, the list has grown over the years. The individual whose name is on the permit can potentially be fined and/or face time in prison if the outlined regulations are not followed.

The USDA/APHIS officials have asked that laboratories require all customers to document the zip code that each sample was obtained from on information sheets that accompany samples (soil or plant). There are also strict packaging requirements, shipping requirements, handling requirements, as well as sample prep and storage requirements. Documentation on disposal of these samples is also required. If clients are aware that the samples they sent may be in a regulated area, the laboratory must be notified so that quarantine procedures can be followed.

The affected areas are now dispersed in various regions throughout the U.S. and are growing. A list of regulated materials both foreign and domestic accompanies this article. Servi-Tech

Laboratories has decided to discontinue permitting the Hastings lab. Any regulated material that is received in Hastings will be sent to the Dodge City facility for analysis and quarantine.

Please feel free to contact the Servi-Tech Laboratory at 800-557-7509 with questions or further instructions pertaining to this issue.

4. Applicable Federal Quarantine(s) or Regulations	Sand, Soil, or Earth, with Plants from Territories and Districts (Hawaii, Puerto Rico, and the Virgin Islands) (7CFR 318.60)
Plant Protection Act (7USC 7701)	Foreign Quarantine Notices (7CFR 319)
Animal Health Protection Act (7USC 8301)	(Soil from Guam, Hawaii, Puerto Rico, and the U.S.
Mexican Fruit Fly (7CFR 301.64)	Foreign Quarantine Notices) (7CFR 319)
Mediterranean Fruit Fly (7CFR 301.78)	(Soil from Guam, Hawaii, Puerto Rico, and the U.S. Virgin Islands is handled as foreign soil and is authorized movement into the continental U.S. under the provisions described for foreign soil.)
Witchweed (7CFR 301.80)	Potato Cyst Nematode , Federal Interim Rule, FR Vol. 72, No. 176. 51975-51988, 9-12-07.
Imported Fire Ant (7CFR 301.81)	
Golden Nematode (7CFR 301.85)	
Karnal Bunt (7CFR 301.89)	
Phytophthora Ramorum (7CFR 301.92)	
Oriental Fruit Fly (7CFR 301.93)	
Melon Fruit Fly (7CFR 301.97)	
West Indian Fruit Fly (7CFR 301.98)	
Federal Plant Pest Regulations; General; Plant Pests; Soil, Stone, and Quarry Products; Garbage (7CFR 330)	
Sugarcane Diseases (Hawaii & Puerto Rico) (7CFR 301.87)	
Guam (7CFR 318.82)	

2008 Award Winners



Employee of the Year

Ryan Meister
Crop Consultant
York Division
Staplehurst, NE

Ryan has been number one in Servi-Tech for three years in a row for revenue generated. He heads up all the GPS and mapping in his division. He spends countless evenings after hours, during the fall and winter mapping fields, lining up crews, and putting books together. Ryan is a great teacher to new employees in his division. Without him, it would be tough to educate them. He has a wealth of knowledge. Ryan has an unbending loyalty to his co-workers as well as his clients, he is a cornerstone of his division.

Crop Specialist of the Year

Bryce Vance
Crop Consultant of the Year
Dodge City Division
Dighton, KS



Bryce is in his fourth crop season with Servi-Tech. He has developed his area during the past four years and significantly increased his revenue each year. He has developed a well deserved reputation among the local farmers for quality and dependable work. Bryce has been innovating in developing new programs for income in his area. He has grown the business in the area through persistent cold calling. He has also had a presence at local cooperative farm expos at the Servi-Tech booth, greeting the public, and explaining the crop service program.



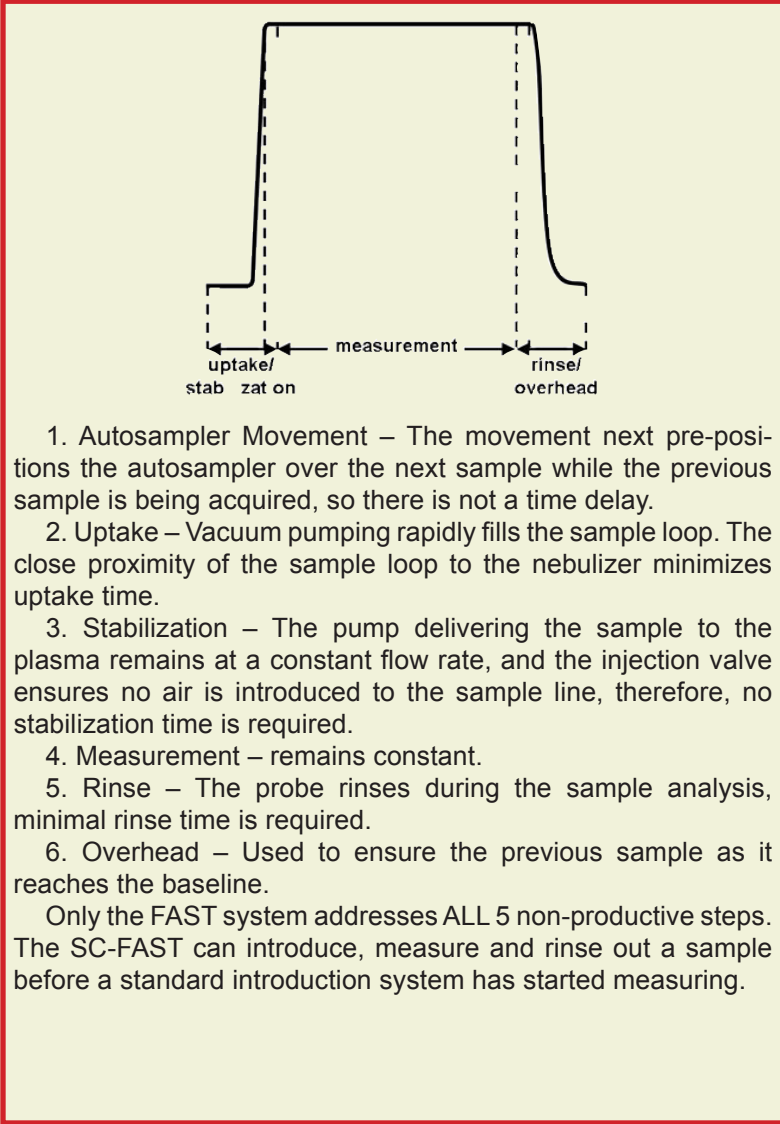
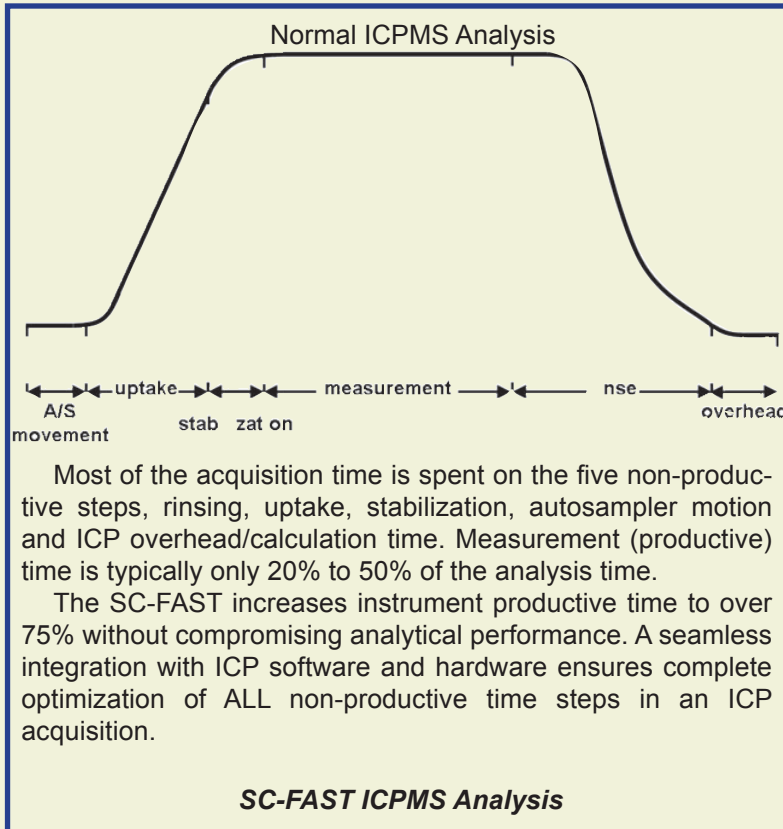
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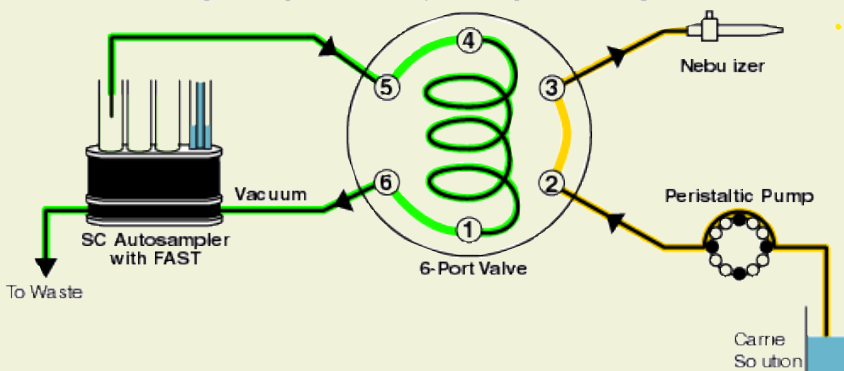
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Periodical

SC-FAST for SC- Autosamplers (cont'd from page 1,2)



LOAD SAMPLE / RINSE NEBULIZER



A Teflon vacuum pump loads the sample into a loop while a carrier solution is nebulized. Then the carrier solution pushes the sample into the nebulizer at the same time the sample line is rinsed.