USDA-ARS / USWBSI
FY03 Final Performance Report (approx. May 03 – April 04)
July 15, 2004

Cover Page

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Year:	**FY2003 (approx. May 03 – April 04)**
FY03 ARS Agreement ID:	**59-0790-9-063**
FY03 ARS Agreement Title:	**Marlting Barley Deoxynivalenol Diagnostic Services.**
FY03 ARS Award Amount:	**$ 107,254**

USWBSI Individual Project(s)

USWBSI Research Area*	Project Title	ARS Adjusted Award Amount
FSTU	Malting Barley Deoxynivalenol Diagnostic Services.	$ 107,254
	Total Amount Recommended	**$ 107,254**

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Principal Investigator Date

* BIO – Biotechnology
CBC – Chemical & Biological Control
EDM – Epidemiology & Disease Management
FSTU – Food Safety, Toxicology, & Utilization
GIE – Germplasm Introduction & Enhancement
VDUN – Variety Development & Uniform Nurseries

Project 1: ***Malting Barley Deoxynivalenol Diagnostic Services.***

1. What major problem or issue is being resolved and how are you resolving it?

DON analytical services are provided to nine collaborating researchers at four barley varietal developmental programs. These programs stated a need for the analysis of approximately 7,000 samples in FY03. The major issue is to provide DON analytical services in a cost effective. Timely and accurate manner. Funds provided by the USWBSI have allowed us to hire additional personnel and to subsidize the cost of analysis.

2. What were the most significant accomplishments?

Approximately 9,500 barley samples from the 2003 crop were analyzed for DON by gas chromatography with electron capture detection (GC-ECD). This compares to 8,650 samples in 2002-03. Samples included breeder's lines, crop survey samples, and samples from research studies. The 2003 crop samples were analyzed beginning in August, 2003 and were completed in July, 2004.

Methodologies were adopted for the determination of additional tricothecene mycotoxins by gas chromatography mass spectrometry (GC-MS). Several collaborating research scientists required analysis of 3-acetyl DON in addition to DON analysis.

A barley check sample service was operated as a service to 16 academic and industry labs. Two samples are shipped to each collaborator on a monthly basis.

Regional crop survey samples (N=306) were analyzed for DON in order to provide an estimate of barley FHB distribution and severity throughout the region.

Include below a list of the publications, presentations, peer-reviewed articles, and non-peer reviewed articles written about your work that resulted from all of the projects included in you grant. Please reference each item using an accepted journal format. If you need more space, continue the list on the next page.

Dahleen, L.S., Agrama, H.A., Horsley, R.D., Steffenson, B.J., Schwarz, P.B., Mesfin, A. and Franckowiak, J.D. 2003. Identification of QTLs associated with Fusarium head blight resistance in Zhedar 2 barley.*Theor. App. Genet.* 108:95-104.

Kottapalli, B., Wolf-Hall, C.E., Schwarz, P., Schwarz, J., and Gillespie, J. 2003. Evaluation of hot water and electron-beam irradiation for reducing *Fusarium* infection in malting barley. *J. Food Protection* 66(7):1241-1246.