Idaho Agricultural Experiment Station
Multistate Research Project/
Multistate Coordinating Committee and Information Exchange Group
Annual Meeting Response Form

As an **official participant** and with the **prior approval** of the University of Idaho-Idaho Agricultural Experiment Station (IAES), financial support for travel expenses associated with the annual meeting for the multistate or coordinating committee activity are authorized. Upon return from the annual meeting and prior to processing the travel claim, the participant must complete the following Annual Meeting Response Form, in its entirety, and submit via email to agres@uidaho.edu

QUESTION	RESPONSE
Multistate Project/Committee Designated Number (i.e., WERA-089)	WERA-20
Title:	Virus and Virus-Like Diseases of Fruit Trees, Small Fruits, and Grapevines
Annual Meeting Location and Date(s):	Augusta, MI: June 14-17, 2009
Duration of Project/Committee:	2006-2011
Idaho Researcher Name:	Alexander V. Karasev
Percent Research, Extension, Teaching Appointment(s):	Research – 80%, teaching – 20%
List Project Objectives:	1. Promote and improve communication and cooperation among entomologists, plant pathologists, horticulturists, and other professionals concerned about plant health to determine the vectors of virus and virus-like diseases and to investigate the role of vector biology in the epidemiology of diseases. 2. Encourage, facilitate, and speed work on the cause and control of newly detected diseases and disorders by increasing contacts and communication on newly discovered problems likely to be caused by viruses or virus-like agents. 3. Facilitate rapid adoption and proper use of newly developed techniques and information that aid in the characterization and detection of virus and virus-like plant pathogens. 4. Provide information and expertise (research and extension) to help in the management of PPV. 5. Provide a source of research information and service to quarantine and certification agencies, germplasm repositories, experiment station and government administrative agencies nationwide and the tree fruit, small fruit and grapevine industries.
Relevant Expertise and Emphasis of Idaho Researcher (s): *(short statement)*	*Grapevine virus diagnosis and control*
Idaho Research Update: *(Describe in 10 sentences or less the IAES contribution to and outcomes of its participation in the project or committee)*	In recent years, wine grape (*Vitis vinifera*) acreage in Idaho is expanding due to favorable climatic conditions for premium wine production. Nearly 95 percent of the total 1,215 acres of wine grapes are in the Snake River Valley appellation, with Canyon County accounting for 81 percent of the grape vines. However, little is known about the incidence and economic impact of GLD on wine grapes in Idaho. During 2008 growing season, leaf samples from about 25 individual grapevines showing or suspected for GLD symptoms were collected randomly from six wine grape cultivars (Cabernet Sauvignon, Merlot, Syrah, Petit Syrah, Lemberger and Chardonnay) grown in 10 geographically separate vineyards in Canyon and Elmore counties. Petiole extracts from these samples were tested by single-tube reverse

	transcription-polymerase chain reaction. All samples tested positive for GLRaV-3, producing a single band of the expected size of 546 base pairs (bp). An enzyme-linked immunosorbent assay (ELISA) with GLRaV-3-specific antibodies confirmed the presence of the virus in samples that were positive in RT-PCR. GLRaV-3-specific amplicons were cloned in pCR2.1 vector and sequenced in both orientations. A pair-wise comparison of twenty two sequences showed 87 to 100% identity at the nucleotide level and 92 to 100% identity at the amino acid level. A pair-wise comparison of HSP-70 sequences of GLRaV-3 isolates from Idaho with corresponding sequences of GLRaV-3 isolates from GenBank database showed nucleotide sequence identities between 88 and 99%. Phylogenetic analysis of HSP-70 sequences from Idaho and GenBank showed clustering into four groups, with 12 sequences in one group, 7 isolates in a second group, one sequence in a third group and 2 sequences in a fourth group. The pattern of clustering indicated lack of cultivar-specific or vineyard-specific groupings, suggesting multiple, independent introductions of different GLRaV-3 isolates into the State vineyards. This is the first report of GLRaV-3 in grapevines grown in Idaho. These results, together with previous reports indicate wider distribution of GLRaV-3 in several grapevine cultivars in the Pacific Northwest region as previously thought.
Idaho Research Impact(s): *For each impact include 1) impact title, 2) issue (who cares and why), 3) what has been done, and 4) impact (include economic, environmental, social and or impact on discipline) Remember that impact can be defined as the quantifiable difference a program makes in the condition or the quality of life for its clients and general citizenry; or the change in understanding within a discipline.*	1. **First report of *Grapevine leafroll-associated virus-3* in wine grape cultivars in Idaho** This finding should lead to changes in grapevine growing practices in Idaho, which include amendments to state regulations of grape budwood movements, implementation of control measures against mealybugs, and development of monitoring of virus incidence and spread.
Relevant Idaho Publications:	1. Mekuria, T., Karasev, A.V., Martin, R.R., and Rayapati, N. (2009). First report of Grapevine leafroll-associated virus-3 in wine grape cultivars in Idaho. *Plant Disease* (submitted).
What issues of strategic importance (including those identified by stakeholders) were addressed by the multistate project or activity?	1. Early detection and management of viruses causing leafroll disease in grapevine. 2. Improved methods of grapevine leafroll detection in plant samples and in mealybug vectors.
What needs of underserved and underrepresented populations for the state(s) were addressed by the multistate project or activity?	The annual meeting has updated participants on current research, identified new, spreading or ongoing concerns with grapevine and small and tree fruit virus disease problems, identified potential sources of support for research needs, prioritized research needs, and established cooperative approaches to research needs.