HLWYM PEmails

From: Patrick Laplante
Sent: Friday, August 26, 2005 12:14 PM
To: Compton, Keith
Subject: Fw: Biosphere: Nut and Fruit Trees. Update

----- Original Message -----
From: "Phil Reed" <PRR@nrc.gov>
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Sent: Friday, July 30, 2004 11:57 AM
Subject: Biosphere: Nut and Fruit Trees. Update

In the e-mail I sent you on January 12, 2004, I outlined a couple of approaches on how we might obtain radionuclide uptake and transfer coefficient data for pistachio, almond and pecan nut trees. Because nut species cannot be grown quickly to maturity in laboratory growth chambers, one approach proposed was to lease some nut trees from a farmer in Nye County, Nevada and have the farmer maintain the trees while PNNL conducted uptake experiments at the farm.

This general approach may work, but some modifications will be necessary.
Furthermore, our work will have to be leveraged with PNNL and Oregon States'
interest in this area. Bruce Napier, PNNL, will be able to take some samples from Nye County and, along with staff from PNNL and Oregon State university, obtain soil-to-plant concentration ratios for nut and other fruits and develop a radionuclide uptake model for fruit trees that would be incorporated into GENII2. This latter work will fit into our Task 6 for looking at new conceptual models for the food-chain pathways.

PNNL contacted a farmer in the Amargosa Basin who raises pistachios and several other fruit trees (about 1 mile from the location where we obtained the soil and groundwater for our experiments). PNNL plans to take some soil, tree, and nut samples from this farm and analyze them for natural constituents (plus any fallout radionuclides that are there). The can do this very inexpensively which would be much cheaper than trying to grow them themselves. The farmer will be paid for the samples taken.

Also, Bruce Napier could get the farmer to grow the same row crops as PNNL is growing in their growth chamber. (It is probably too late in the growing season to do that this year - but PNNL would be ready come spring!) This would allow us to look at the non-radioactive (and fallout) uptake under actual field conditions in the Yucca Mt area. PNNL would use this to normalize (or scale) our indoor experiments, and adjust all of the GENII2 transfer factors for Yucca Mt conditions.

Because little research has been done on obtaining data for and modeling of radionuclide uptake in trees, PNNL could be come a world leader in this area. In addition, this is a good opportunity to address several of our and ACNW biosphere questions cheaply and relatively rapidly, too.

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"Compton, Keith" <Keith.Compton@nrc.gov>
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