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SHORT SUBJECTS AND TIMELY TIPS FOR PESTICIDE USERS

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BIOLOGICAL CONTROL, IPM, AND EXOTIC PESTS PEST CONTROL

SOUTHERN RESEARCH STATION PUBLISHES GUIDE FOR IDENTIFYING AND CONTROLLING NONNATIVE INVASIVE PLANTS

(Source: News Release, USDA Forest Service, Southern Research Station (SRS), May 29, 2003)

A new guide entitled "Nonnative Invasive Plants of Southern Forests – A Field Guide for Identification and Control" written by Dr. James H. Miller, research ecologist at the SRS

Forest Vegetation Management unit in Auburn, AL provides an important new resource for individuals and agencies trying to control the spread of nonnative invasive plants. The book covers 33 plant groups, with 40 species highlighted. The identification section includes a complete description of each plant, its ecology, resemblances to other plants, history, and use. Detailed photographs illustrate how the plant looks during different seasons. The book offers both general and specific information on controlling the spread of nonnative invasive plants as well as providing illustrated directions on how to apply herbicides to target nonnatives while avoiding damage to desirable plants. It also provides suggestions on burning, hand pulling and mechanical treatments.

The guide is available online in .pdf format (104 pages) at http://www.srs.fs.usda.gov/pubs/gtr/gtr_srs062/gtr_srs062.pdf. To request a printed copy, call (828) 257-4830, or send an Email to pubrequest@srs.fs.usda.gov and ask for GTR-SRS-62. Copies can also be requested by mail from USDA-SRS Publications, 200 W.T. Weaver Blvd., P.O. Box 2680, Asheville, NC 28802.

For more information about the guide -

CONTACT: DR. JAMES MILLER (NC)

(334) 826-8700 jmiller01@fs.fed.us

FUNGUS HELPS KEEP GYPSY MOTH POPULATIONS IN CHECK

(Source: The Forestry Source, May 2003 [Online])

The Pennsylvania Department of Conservation and Natural Resources (DCNR) has announced that it will not have to spray to control moth populations this year. The reason is due to the presence of the Asian fungus, *Entomophaga maimaiga*, which sickens and kills gypsy moth larvae. The fungus, which is a natural enemy of gypsy moth, was introduced into the United States between 1910-1920, but it "wasn't until 1989 that scientists discovered the fungus was having an effect on gypsy moth populations in Maine." The fungus's affect, however, is far from constant and monitoring will continue along with conducting annual egg mass counts from mid-summer into fall.

The article is available online at

<u>http://www.safnet.org/archive/0503_fungus.cfm?printPage=1&</u> or contact Pat Skyler (916) 454-0817, pskyler@fs.fed.us. For additional information –

CONTACT: LARRY D. RHOADS (PA) (717) 948-3941

HUMAN HEALTH

PROMISING NEW COMPOUND FOR FENDING OFF INSECTS

(By Rosalie Marion Bliss)

(Source: ARS News & Information, June 2, 2003 [Online])

SS220 is a new chemical compound that has been developed by the Agricultural Research Service (ARS) and the U.S. Department of Defense. The compound has been patented by ARS and appears to show promise as the key active ingredient in new, safe insect repellents for military personnel and eventually for the general public. When the research project was launched 3 years ago, its objective was to identify and develop a new standard military insect repellent to replace DEET. Researchers were seeking a new repellent that would be effective against "a wider range of mosquito species, and compatible with commonly used plastics such as in eyeglass frames and military equipment." The compound "is currently undergoing toxicology tests required for registration with the U.S. Environmental Protection Agency".

The article can be accessed online at http://www.ars.usda.gov/is/pr/2003/030602.htm or contact Pat Skyler, (916) 454-0817, pskyler@fs.fed.us. For additional information on the ongoing research –

CONTACT: JEROME KLUN

(301) 504-9388 klunj@ba.ars.usda.gov

MISCELLANEOUS

INVASIVE SPECIES RESEARCH IN THE UNITED STATES DEPARTMENT OF AGRICULTURE – AGRICULTURAL RESEARCH SERVICE

(R. I. Carruthers)

(Source: Pest Management Science 59:827-834, 2003 [Online])

"Abstract: Invasive pests cause huge losses both to agricultural production systems and to the natural environment through displacing native species and decreasing biodiversity. It is now estimated that many thousand exotic insect, weed and pathogen species have been established in the USA and that these invasive species are responsible for a large portion of the \$130 billion losses estimated to be caused by pests each year. The Agricultural Research Service (ARS) has responded with extensive research and action programs aimed at understanding these problems and developing new management approaches for their control. This paper provides an overview of some of the ARS

research that has been conducted on invasive systems of high interest to the US Department of Agriculture. Published in 2003 for SCI by John Wiley & Sons, Ltd.

The article is available online at: (When the page appears onscreen, choose PDF full text) http://download.interscience.wiley.com/cgi-bin/fulltext?ID=104534538&PLACEBO=IE.pdf&mode=pdf

If you are unable to access it online –

CONTACT: PAT SKYLER (CA) (916) 454-0817 pskyler@fs.fed.us

SURVIVAL OF PONDEROSA PINE (PINUS PONDEROSA DOUGL. EX LAWS.) SEEDLINGS OUTPLANTED WITH RHIZOPOGON MYCORRHIZAE INOCULATED WITH SPORES AT THE NURSERY

(D. Steinfeld, M.P. Amaranthus and E. Cazares)

(Source: *Journal of Arboriculture* 29(4): July 2003, [Online]

"Abstract: Numerous studies have shown that ectomycorrhizal fungi can profoundly affect conifer performance by facilitating nutrient and water uptake, maintaining soil structure, and protecting roots from pathogens and environmental extremes. However, fertilizing and irrigating practices in seedling production nurseries are very different than field conditions at harsh outplanting sites. More information is needed on the ability of specific mycorrhizal fungi to establish at the nursery and improve seedling performance in the outplanted environment. This study was conducted to test the ability of a specific ectomycorrhizal fungus, Rhizopogon rubescens, inoculated onto the root systems of plug-1 ponderosa pine (*Pinus ponderosa*) seedlings grown in fumigated and nonfumigated bare-root nursery beds to influence conifer establishment on two harsh, dry sites in southwest Oregon, U.S. After outplanting, survival of Rhizopogon-inoculated seedlings were significantly higher than noninoculated seedlings at both field sites (p <0.05). Survival averaged 93% for *Rhizopogon*-inoculated seedlings and 37% for noninoculated seedlings at the Central Point site. Survival averaged 71% for *Rhizopogon*-inoculated seedlings and 41% for noninoculated seedlings at the Applegate site. Field survival did not differ significantly for ponderosa pine seedlings grown in fumigated compared to nonfumigated beds. Seedling height did not differ significantly between Rhizopogon-inoculated and noninoculated ponderosa pine seedlings or fumigated and nonfumigated beds in the nursery or outplanting sites. Foliar analysis at the Applegate site indicated significantly higher phosphorous contents for *Rhizopogon*-inoculated seedlings. Results from this study indicate that Rhizopogon inoculated plug-1 ponderosa pine survive at a much higher rate on dry, harsh sites in southwest Oregon. Poor survival by noninoculated pine seedlings grown in both fumigated and nonfumigated beds and outplanted on harsh sites indicate that field survival should be considered one of the more important criteria for selection of *Rhizopogon* species suitable for nursery inoculation."

The article is available online at:

http://joa.isa-arbor.com/request.asp?JournalID=1&ArticleID=94&Type=1

If you are unable to access the article online –

CONTACT: PAT SKYLER (CA) (916) 454-0817 pskyler@fs.fed.us

AERIAL APPLICATION EQUIPMENT GUIDE 2003

(Bill Kilroy, Dick Karsky, and Harold Thistle)

Previously mentioned in the April issue of Short Subjects & Timely Tips for Pesticide Users, several copies of this free publication are still available. The result of a cooperative effort between the USDA Forest Service, Missoula Technology Development Center and the Forest Health Technology Enterprise Team, the guide provides a broad overview of equipment and procedures common to most aerial spray projects. Both liquid and dry chemical operations are included, as are fixed- and rotor-wing aircraft. Part I covers the system components and the procedures necessary to prepare the aircraft for a spray operation. Part II lists the fixed- and rotor-wing aircraft that may be used for aerial application. Although the emphasis is on aircraft commonly operating in North America, many foreign makes are also included. The guide is 250 pp. and contains many color photos and illustrations.

If you would like a free copy or copies of this publication -

CONTACT: PAT SKYLER (CA) (916) 454-0817 pskyler@fs.fed.us

TROUBLESOME WEEDS OF THE ROCKY MOUNTAIN WEST

In addition to a complete list of the most troublesome weeds, this new (7th edition) publication also features a section on new invaders and invasive ornamentals plus a complete list of county and state weed contacts. The publication can be purchased for \$3.00 by contacting the Colorado Weed Management Association, P.O. Box 1910, Granby, CO 80446-1910, (970) 887-1228, Fax (970) 887-1229, Email: cwma@rkymtnhi.com.

ON THE INTERNET

Several Forest and Tree Health "How To" Publications and Fact Sheets are available online at http://www.na.fs.fed.us/spfo/pubs/fth_pub_pages/howto.htm. Just a few of the newly posted publications are: "How to Collect Field Samples and Identify the Oak Wilt Fungus in the Laboratory", "How to differentiate Dutch Elm Disease from Elm Phloem Necrosis, "How to Save Dutch Elm Diseased Trees by Pruning".

Images of *Phytophthora ramorum*, the pathogen responsible for sudden oak death have been added to the California Oak Mortality Task Force web page. The images represent a time series (hours to 9 days) showing the sporulation of the pathogen. The photomicrographs can be viewed at http://nature.berkeley.edu/comtf/html/photomicrographs.html.

Avoiding Herbicide Resistance in Weeds is a 4-page publication from the Nutrient and Pest Management Program at the University of Wisconsin. It can be downloaded at http://ipcm.wisc.edu/pubs/pest/Weedresist_2002.htm.

Revised risk assessments are now available for triclopyr, picloram and glyphosate on the USDA Forest Service, Washington Office, Forest Health Protection website. View them at http://www.fs.fed.us/foresthealth/pesticide/risk.htm

USDA Forest Service, Technology and Development (T&D) reports are now available online at http://www.fs.fed.us/cgi-bin/enter.pl. Forest Service users accessing the internet site from their offices will not need to log on. Non-Forest Service users will have to request a username and password before being able to log in. You will receive a reply email message with your username and password.

The Forest Health Protection unit of the Forest Service in St. Paul produces an online newsletter entitled "Lake States Forest Health Watch" which keeps land managers up to date on forest health related issues such as insect and pathogen outbreaks. Access the newsletter at http://www.na.fs.fed.us/spfo/pubs/newsletters/lsfhw/index.html.

Invasive Plants of California's Wildlands edited by C.C. Bossard, et al. This publication which was originally published in 2000, through the California Exotic Pest Plant Council, is now available online at

http://groups.ucanr.org/ceppc/Invasive_Plants_of_California's_Wildlands.

The final report from California Department of Pesticide Regulation on herbicide residues in plants of interest to Native Americans is available online at http://www.cdpr.ca.gov/docs/empm/pubs/forest/reports.htm.

Several handy and helpful websites for homeowners can be found at http://www.dnr.state.mn.us/fid/may03/websites.html. The site is sponsored by Minnesota Department of natural resources,

PUBLICATIONS*

Anderson, P.D., B. Palmer, J.L.J. Houpis, M.K. Smith and J.C. Pushnik. 2003. Chloroplastic responses of ponderosa pine (*Pinus ponderosa*) seedlings to ozone exposure. *Environment International* 29: 407-413.

Anonymous. 2003. Hosts of *Phytophthora ramorum* – Causal agent of sudden oak death. Canadian Food Inspection Agency, Plant Health Risk Assessment Unit.

Frank, K.L. 2002. Development of an upper-level synoptic index for examination of the dispersion of white pine blister rust (WPBR) in the Western U.S. (Abstract). *15th Conference on Biometeorology/Aerobiology and 16th International Congress of Biometeorology.* 13A.4, AMS, Boston, MA.

Motooka, P., L. Ching and G. Nagai. 2002. Herbicidal weed control methods for pastures and natural areas of Hawaii. Cooperative Extension Service, College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa. Available online at http://www2.ctahr.hawaii.edu/oc/freepubs/pdf/WC-8.pdf.

Ooms, D., R. Ruter, F. Lebeau and M.F. Destain. 2003. Impact of the horizontal movements of a sprayer boom on the longitudinal spray distribution in field conditions. *Crop Protection*, Vol. 22, pp. 813-820.

Ramsey, C.L., S. Jose, D.L. Miller, J. Cox, K.M. Portier, D.G. Shilling and S. Merritt. 2003. Cogongrass [*Imperata cylindrica* (L.) Beauv.] response to herbicides and disking on a cutover site and in a mid-rotation pine plantation in southern USA. *Forest Ecology and Management* 179: 195-207.

Sheldon, S.P. and R.P. Creed, Jr. The effect of a native biological control agent for Eurasian watermilfoil on six North American waterfoils. *Aquatic Botany*, Vol. 76, Issue 3, pp. 259-265.

Stein, J., D. Binion and R. Acciavatti. 2003. Field guide to native oak species of eastern North America. FHTET-2003-01, 167 pp. USDA Forest Service, Forest Health Technology Enterprise Team, Morgantown, WV.

Teske, M.E. and H.W. Thistle. (In Press). Far-field limits of langrangian spray drift modeling. *Transactions of the ASAE*.

Thistle, H., R. Reardon, L. Huang, J. Brown, S. Cameron, D. Davies, P. Amirault, G. Cormier, G. Dorr, A. Hewitt, M. LeClerc and A. Karipot. 2002. Effects of atmospheric stability and application rate on Nantucket pine tip moth spraying. *Spray Efficacy Research Group Workshop*. Niagara Falls, Ontario.

Thistle, H., B. Lamb, T. Strand, G. Allwine, H. Peterson, E. Holsten, P. Shea. 2002. Pheromone dispersion within a forest canopy. *Spray Efficacy Research Group Workshop*. Niagara Falls, Ontario.

Trent, A. and D. Karsky. 2002. Use of power washer for sudden oak death mitigation (Abstract). *Sudden Oak Death Science Symposium*. University of California, Berkeley, CA.

Wu, L., W.D. Potter, K. Rasheed, J. Ghent, D. Twardus, H. Thistle and M. Teske. (In Press) Nature inspired heuristics in aerial spray deposition management. *The Journal of Applied Systems Studies* (special issue on Real Life Applications of Nature Inspired Combinatorial Heuristics).

*Note: For information on how to obtain a copy of a publication contact Pat Skyler (916) 454-0817, pskyler@fs.fed.us.

UPCOMING EVENTS

20-23 July 2003. The 43rd Annual Meeting of the Aquatic Plant Management Society, Portland, ME. Contact: Ken Manual, Program Chair, (704) 875-5424, Email: klmanuel@duke-energy.com or visit their website at http://www.apms.org/2003/2003.htm.

23-24 July 2003. Joint field tour of the California Forest Pest Council (CFPC) Weed

Committee and the California Forest Soils Council, Auburn, CA. Contact: Bill Morrison (530) 272-2297, Email: bmorrison@spi-ind.com or visit the CFPC website at http://www.caforestpestcouncil.org/.

27-30 July 2003. American Society of Agricultural Engineers 2003 Annual International Meeting, Las Vegas, NV. Contact: Sharon McKnight, (269) 428-6333, mcknight@asae.org or visit their website at http://www.asae.org/meetings/am2003/index.html.

28-31 July 2003. Southern Forest Insect Work Conference, New Orleans, LA. Contact: John Foltz (352) 392-1901, ext. 130, foltz@ufl.edu or visit their website at http://www.sfiwc.org/2003.

30-31 July 2003. National Spray Model and Application Technology Working Group, sponsored by the USDA Forest Service, and held in conjunction with the American Society of Agricultural Engineers 2003 Annual International Meeting, Las Vegas, NV. Contact: Harold Thistle, (304) 285-1574, <a href="https://

18-22 August 2003. The Western International Forest Disease Work Conference, Grants Pass, OR. Contact: Ellen Goheen (541) 858-6125, egoheen@fs.fed.us or visit their website at http://www.fs.fed.us/foresthealth/technology/wif/index.php.

7-9 September 2003. Regional Conference on Agricultural Health and Safety Issues – Challenges in Agricultural Health and Safety, San Francisco, CA. Contact: Gwen Oliver (530) 752-5253, or visit their website at http://agcenter.ucdavis.edu/Announce/AgChallenges2003.php and select "News and Events".

7-11 September 2003. 226th American Chemical Society National Meeting (ACS), New York City, NY. Contact: Dr. Chris Peterson (662) 325-0199, cjpeterson@fs.fed.us, Dr. Terry Spittler (315) 787-2283, tds2@cornell.edu or visit the ACS website at http://membership.acs.org/a/agro and scroll to the middle of the page.

8-11 September 2003. Biennial National Silviculture Workshop, Silver Creek, CO. Contact: Monty Maldonado (202) 205-5683 or Clark Baldwin (703) 605-5178.

17-20 September 2003. American Forests: The National Urban Forest Conference, San Antonio, TX. Contact: Donna Tschiffely (703) 904-6932, Email: donna@amfor.org or visit their website at http://www.americanforests.org/graytogreen/conference.

21-28 September 2003. XII World Forestry Congress, Quebec, Canada. Contact: 1 (418) 694-2424, Fax: 1 (418) 694-9922, Email: sec-gen@wfc2003.org or visit their website at http://www.wfc2003.org/.

2-4 October 2003. Planning Weed Management for Ecosystem Recovery, California Exotic Pest Plant Council 2003 Meeting, Lake Tahoe, CA. Contact: Exec. Director, CalEPPC (510) 525-1502, Email: DWJohnson@caleppc.org.

25-29 October 2003. Society of American Foresters National Convention, Buffalo, NY. Contact: Madelaine Morgan (301) 897-8720, ext. 111, Email: morganm@safnet.org or visit their website at http://www.safnet.org/convention/.

26-29 October 2003. Entomological Society of America Annual Meeting, Cincinnati, OH. Contact: ESA (301) 731-4535, Email: meet@entsoc.org or visit their website at http://www.entsoc.org/annual_meeting/2003/index.html.

3-6 November 2003. Western Forest Insect Work Conference, Guadalajara, Mexico. Contact: Mike Wagner, Email: mike.wagner@nau.edu or visit their website at http://www.fsl.orst.edu/wfiwc/.

3-7 November 2003. Invasive Plants in Natural and Managed Systems: Linking Science and Management and 7th International Conference on the Ecology and Management of Alien Plant Invasions, Ft. Lauderdale, FL. Contact: Nelroy Jackson, (909) 279-7787, Email: nelroy.e.Jackson@monsanto.com or Carla D'Antonio (510) 643-6341, Email: dantonio@socrates.berkeley.edu or visit their website at http://esa.org/ipinams-emapi7/.

UPCOMING TRAINING

8-12 September 2003. Pesticides and Fish and Wildlife Resources (Course ECS3119), National Conservation Training Center, Shepherdstown, WV. Course Description: An overview of the major types of pesticides that may affect fish and wildlife resources, typical routes of exposure, assessing potential risk, and environmental fate of pesticides in terrestrial and aquatic systems. Portions of Federal laws that relate to pesticide use will be described. A description of current pesticide use policy and principles of integrated pest management will be provided. Participants will learn procedures to evaluate non-target effects, and considerations for listed species. Case histories describe different types of pesticide use and field investigation procedures. Useful references and information sources about pesticide safety and use and fish and wildlife risk are provided. An application can be completed online at http://training.fws.gov/catalog/app99.html or contact Frank Muth, (304) 876-7471 or Mary Kimble (304) 876-7449.

CALL FOR ARTICLES

Please forward to me all articles, meeting announcements, publications, reports, or other items of interest that you would like included in the next issue of Short Subjects & Timely Tips for Pesticide

Users. Please include the name, State, and telephone number of the individual who can be contacted for further information:

CONTACT: PAT SKYLER (CA) (916) 454-0817/Fax (916) 454-0820

Email: pskyler@fs.fed.us

The Washington Office, Forest Health Protection, Forest Health Technology Enterprise Team sponsors, compiles, edits, and distributes this informal information letter as a means of providing current information to forestry pesticide users. Previous issues can be viewed online at

http://www.fs.fed.us/foresthealth/pesticide/news.htm. Comments, questions, and items of input are welcome and may be sent to Pat Skyler, Editor, USDA Forest Service, Remote Sensing Lab, 1920 20th Street, Sacramento, CA 95814, or by E-mail: pskyler@fs.fed.us. Reference to a commercial product or source in this information letter does not constitute endorsement by the USDA Forest Service. Information should be verified by contacting the original source of information as neither the editor nor the USDA Forest Service guarantees the accuracy of the information provided in this information letter. Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or wildlife if they are not handled or applied properly. Use all pesticides in accordance with label precautions.

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