

**State of Oregon State University Annual Report for Calendar Years 2003 and 2004  
W-6 Technical Committee**

**Compiled by Shawn A. Mehlenbacher**

Oregonians continue to use the PI system extensively. Users include state and federal researchers as well as private seed companies and private individuals.

**Progress Reports:**

1. **James Myers**, Dept. of Horticulture, Oregon State University, Corvallis, OR 97331

Thirty-nine accessions of onion (*Allium cepa*) listed in GRIN as having red or mixed color were requested in 2004 to evaluate material and identify suitable parents for improvement of the open-pollinated 'Bennie's Red' currently in use. Marketers need more intense and uniform red color in a good storage type that also has high levels of resistance to pink root. They, along with commercial materials, were evaluated in an observation trial for field and storage traits as well as for bulb color. None of the PI accessions had desirable characteristics for color, and most did not have the necessary storage characteristics. Two open-pollinated types ('Red Wethersfield' and 'Southport Red Globe') were comparable to 'Benny's Red'. Some accessions were short-day types, others were too light in color, or appeared to have been misclassified as having red bulbs. Many exhibited multiple bulbs and/or had a non globe shape. A few (most notably **PI 232068, PI 249538, PI 288906, and PI 432715**) had intensely red outer scales, and may be a source of improved color. The best appearing entries in the trial were hybrids, with 'Rumba' and 'Flamenco' best for characters observed in the field. The best for internal and external color were 'Red Wethersfield', 'Flamenco', 'Red Baron', 'Red Beauty', and 'Redwing'. The best for storage were 'Bennie's Red', 'Red Wethersfield', 'Flamenco', and 'Red Beauty'. 'Redwing' showed intermediate storage ability and 'Red Baron' did not store well. Among these entries, 'Red Wethersfield' is an open-pollinated cultivar; the other accessions are F<sub>1</sub> hybrids. 'Red Baron', 'Red Wethersfield', 'Flamenco', and 'Red Beauty' have significantly better color than 'Bennie's Red'. To use F<sub>1</sub> hybrids with male-sterile cytoplasm, fertility restorer genes will be required to establish a fertile breeding population.

*Phaseolus vulgaris* accessions were requested to determine their centers of origin and race. Most of the requested accessions belong the "Refugee" group of snap beans. His hypothesis is that this group represents a separate derivation of snap beans in the Mesoamerican center of domestication in race Durango. Other snap beans are derived either from Mesoamerica race Mesoamerica or Andean race Nueva Granada. He will test this hypothesis using molecular marker-based fingerprints and crossing among snap bean types.

*Lens culinaris* accessions (502 in 2004 and 506 in 2003) were used in an ongoing project to screen the lentil collection for resistance to pea enation mosaic virus (PEMV) in collaboration with Fred Muehlbauer (USDA-ARS, Pullman, WA). The project is funded through the Cool Season Food Legume CGC. The project started in 2001 and will be completed in 2006. Each year, about 500 accessions are requested. Resistance to PEMV is very rare; each year only one or two resistant accessions are identified. Five accessions (PI 606691, PI 606609, PI 633926, PI 533691 and PI 472525) have moderate to high levels of resistance. The first two have been tested for several years and have consistently express resistance.

2. **Rachael Andrie** and **Linda Ciuffetti**, OSU Dept. of Botany and Plant Pathology, Corvallis, OR 97331.

Accessions of bromegrass (*Bromus inermis*) are being used to study brown leaf spot caused by *Pyrenophora bromi*. The presence of conspicuous chlorotic halos surrounding brown leaf spots suggests the involvement of a phytotoxin. *P. tritici-repentis*, the species of *Pyrenophora* most closely related to *P. bromi*, requires the production of multiple host-selective toxins (HSTs) to cause the disease tan spot of wheat, including the proteinaceous HSTs Ptr ToxA and Ptr ToxB. Because of the relatedness of *P. bromi* and *P. tritici-repentis*, it is conceivable that *P. bromi* contains homologous sequences to *ToxA* and/or *ToxB*, the products of which may be involved in its interaction with bromegrass. Research aims to determine if a homolog of a host-selective toxin from *Pyrenophora tritici-repentis* is at work in the *Pyrenophora bromi*-bromegrass interaction. First, we established that *ToxB*-like, but not *ToxA*-like, sequences are present in isolates of *P. bromi*. Comparisons of the putative open reading frames of the *PbToxB* sequences of *P. bromi* and *ToxB* of *P. tritici-repentis* clearly indicate a high level of relatedness, though at the inferred amino acid level the *PbToxB* proteins are more similar to each other than with the *ToxB* protein. Second, we confirmed that at least one copy of *PbToxB* for each of three *P. bromi* isolates is transcribed in culture and *in planta*, including the *Bromus inermis* cultivars Baylor (PI 578547) and PL-BDR1 (PI 531501), obtained from the U.S. National Plant Germplasm System (NPGS), as well as a commercial cultivar. To assess the role of *PbToxB* in the interaction between *P. bromi* and bromegrass, the corresponding *PbToxB* loci were heterologously expressed in *Pichia pastoris* and the resultant *PbToxB* proteins infiltrated into bromegrass and wheat. Infiltration of *PbToxB* into bromegrass did not result in obvious disease symptoms; however, infiltration of at least one *PbToxB* into wheat resulted in chlorosis.

3. **Shawn Mehlenbacher**, Dept. of Horticulture, Oregon State University, Corvallis, OR 97331.

Evaluation of hazelnut accessions in the USDA Repository collection for response to eastern filbert blight inoculation are continuing. Of 58 accessions evaluated by Honglin Chen in her M.S. research, 12 remained free of infection. These include *Corylus avellana* 'Culpla' from Spain and COR 187 from Finland, as well as several interspecific hybrids: COR 506, G081S, Weschcke selections TP1, TP2 and TP3, Chinese Trazel Gellatly #6, Turkish Trazel Gellatly #3, Lisa, and Estrella #1. OSU 408.040 transmits resistance to about half of its offspring, indicating control by a single dominant allele. Five AFLP markers linked to this allele for resistance were identified. The Spanish cultivar 'Ratoli' was found to transmit resistance to 67% of its offspring, but 'Closca 'Molla' does not transmit resistance. Russian selection OSU 495.072 and an unknown Georgian selection (OSU 759.010) are also completely resistant to EFB and transmit resistance to their offspring. Canker measurements in December 2004 showed 'Lozovskoi Sharovidnii' from Kharkiv (Ukraine) and 'Uebov' and 'Crevejne 3/96' from Cacak (Serbia) to be free of disease. The incompatibility alleles in several accessions were identified.

M.S. student Tufan Gokirmak used 270 hazelnut accessions and 21 microsatellite loci in a study of genetic diversity in *Corylus avellana*.

Hazelnut germplasm continues to be collected from various places around the world. Seeds were collected in the Republic of Georgia (in 2001 and 2003), Azerbaijan (2001), Russia (2002), Crimea (Ukraine, 2002), and Turkey (2004). A few hundred seedlings from each collection are now growing. Scions have also been imported from the first three of these countries.

4. **Steve Castagnoli**, Mid-Columbia Experiment Station, Oregon State University, 2990 Experiment Station Drive, Hood River, Oregon 97031-9512.

Accessions of several *Pyrus* species, including several previously obtained by Dave Burkhart, are flowering pears being evaluated for use as pollinizers in high density pear orchards. To date, a handful of plants has been propagated and information on bloom phenology has been collected for one season.

5. **Fred Crowe**, Dept. of Botany & Plant Pathology, Oregon State University, Central Oregon Agricultural Research Center, 850 NW Dogwood Lane, Madras OR 97741.

Several garlic (*Allium*) accessions from Pullman were requested for evaluation and observation of diseases. Many garlic accessions were collected in the former USSR, considered the center of origin for garlic. Plant materials had previously been difficult to obtain from this region. He felt that there was some risk that novel disease or pest organisms might be harbored in this collection. Mostly because of these concerns, he obtained 42 accessions from the USDA collection, and planted and maintained them for several years at the research center in Madras: 40 were planted in 2000 and harvested in 2001; this was repeated in 2001-2002 and 2002-2003. Several additional USDA accessions were obtained in 2003 along with a much larger number (around 100) from commercial small producers around the U.S., and were harvested in 2004. He was concerned whether the small but widespread U.S. garlic seed trade in novel garlic varieties was passing along clove-borne diseases. Attempts to isolate some common seed-borne fungi resulted in trace detections of *Fusarium roseum* but no *Botrytis porri*. No white rot (*Sclerotium cepivorum*) was found in any plants in this collection. Of greater interest were nematodes, viruses and new diseases that might be carried on vegetative seeds. Samples of all USDA and commercial garlics were submitted for nematode analysis, and no bulb nematodes (*Ditylenchus dipsaci*) were detected. Leaves of each USDA and commercial garlic were tested for potyviruses, and **nearly every variety/line was found infected**, which he says was not surprising. Further efforts to characterize virus types were not conducted because of lack of funding, although some garlic accessions manifest highly unusual virus-like symptoms. This suggests that either unusual viruses or virus complexes might be present, or that some lines manifest unusual host reactions. Other than viruses, no new or unusual diseases were found in his plantings in central Oregon. However, the cool, dry climate of central Oregon may not be conducive to fungi that prefer warmer, wetter conditions. Viruses do not spread readily in central Oregon because of lack of aphid activity, so there was minimal risk to commercial garlic seed production nearby. Such risk was greater from USDA garlic accessions planted in central California, where garlic viruses spread readily with high aphid activity. The now-common practice of meristem tissue culture and limited generation seed programs in the larger U.S. garlic industry has lessened the concern about novel virus introductions.

Abundant redundancies of garlic "variety" seem to appear in the USDA collection, as other researchers have observed and reported. It seems a good guess that the presence of abundant viruses and probably virus complexes are impacting the phenotype of many or all of these garlic accessions, perhaps further complicating the identification of duplicate accessions, and certainly reducing their performance from the viewpoint of selecting lines of commercial interest. It would be worthwhile to pass the whole collection through a virus eradication program. We have discontinued our plantings.

6. **Robert Spotts**, Oregon State University; Mid-Columbia Agricultural Research and Extension Center, Oregon State University, Hood River, OR 97031 and **Joseph Postman**, USDA-ARS-NCGR, Corvallis, OR 97333

Susceptibility to powdery mildew (PM), caused by the fungus *Podosphaera leucotricha*, was evaluated in the *Pyrus* core collection, which consists of about 200 accessions and includes 29 Asian cultivars (ASN), 107 European cultivars (EUR) as well as hybrids and pear species selections. Trees were evaluated for PM symptoms from natural field infections during 2003, by counting the number of leaves with symptoms on ten current year shoots. In 2001-2003, three trees of each accession were grafted on potted seedling rootstocks, artificially inoculated in a greenhouse, grown under suitable PM conditions and evaluated for symptoms. European accessions were more susceptible to PM than Asian accessions. Cultivars with consistent low PM ratings were identified.

The *Pyrus* core collection was evaluated for resistance to pear scab caused by *Venturia pirina* Aderh. Potted trees of each accession were artificially inoculated and grown under greenhouse conditions ideal for infection. Orchard trees were evaluated during 10 years for fruit scab (FS), and during 3 years for leaf scab (LS). Only 34 clones produced leaf symptoms following greenhouse inoculation, and 24 of these also rated high for natural LS in the field. All Asian cultivars were nearly free of both FS and LS. Thirty eight percent of European cultivars had mean FS ratings >4, and 8% had no scab or negligible scab. European cultivars with negligible FS and LS include 'Arganche,' 'Batjarka,' 'Brandy,' 'Erabasma,' 'Muscat,' and 'Passe Crassane.' Resistant pear cultivars may be grown without chemical scab control, and may be useful as parents in breeding.

7. **Solomon Yilma**, Dept. of Crop and Soil Science, Oregon State University, Corvallis, OR 97331.

Two potato clones with horizontal resistance to late blight (LBR8 = PI 599265 and LBR9 = PI 599266) were evaluated and found to show a high level of field resistance. They were used as parents in crosses with russet-skinned selections. The two clones originated at the International Potato Center (CIP).

8. **Aaron Liston**, Dept. of Botany and Plant Pathology, Oregon State University, Corvallis, OR 97331.

Accessions of *Pinus* and *Trifolium* were requested for use in phylogenetic investigations.

9. **Andrew Ross**, Dept. of Crop & Soil Science, Oregon State University, Corvallis, OR 97331

Five samples of wheat (*Triticum aestivum*) were requested to study glutenin proteins in the seed endosperm and their relationship to end-use quality (primarily in noodle products). The five lines are deficient in specified glutenin proteins. Seed increase in the greenhouse is in progress; research will begin when >500 g of seed of each line is available.

10. **Zuzana Vejlupkova** and **John Fowler**, Dept. of Botany and Plant Pathology, Oregon State University, Corvallis, OR 97331.

*Pennisetum* and maize (*Zea mays*) were requested for use in research on pollen tube growth. *Pennisetum* seeds were obtained from greenhouse-grown plants and will be used in future research.

11. **Alan W. Taylor**, Dept. of Chemistry, Oregon State University, Corvallis, OR 97331.  
Several samples of hops were analyzed in the Mass Spectroscopy Lab for prenylflavonoids in cooperation with Jodi Jackson, Kim Hummer and Jim Oliphant at the USDA Repository. Dr. Taylor now works at the Linus Pauling Institute on campus.
12. **Art Poole**, OSU Extension Service (emeritus), 1450 Evergreen Drive, Coos Bay, OR 97420  
Centennial cranberry (*Vaccinium macrocarpon* PI 169736) was requested on behalf of grower Bob Donaldson for its reported high Brix content. Plants were propagated and used to establish a 10' x 10' plot near Langlois.
13. **Mark Larson** and **Jim Peterson**, Dept. of Crop and Soil Science, Oregon State University, Corvallis, OR 97331.  
Triticale accessions PI386148 and PI386149 were requested for their Russian wheat aphid resistance and planted in the wheat breeding program's crossing block. It was also found to have very good Septoria resistance, and additional crosses were made for that objective.
14. **Brian Charlton**, OSU Klamath Experiment Station, 6941 Washburn Way, Klamath Falls, OR 97603.  
Potato accessions were requested from Sturgeon Bay for tuber evaluation and use in breeding. Selections were also evaluated for frost tolerance under field conditions. Several selections were retained for further evaluation, although freeze chamber assessments did not indicate a higher level of frost tolerance than cultivars. *Eragrostis tef* accessions were evaluated for improved forage characteristics, and several appeared to be superior to existing cultivars for this purpose. A replicated trial has been established comparing N rates, seeding rates, and irrigation. This teff research was featured in articles in the Capital Press newspaper and Hay and Forage Grower magazine. These articles generated much interest, and a seed grower in the Willamette Valley and a seed distributor in the Klamath Basin shipped over four tons of seed.
15. **Bill Proebsting**, Dept. of Horticulture, Oregon State University, Corvallis, OR 97331  
An accession of pea (*Pisum sativum*) was requested because it is sensitive to bruchins, the pea weevil chemicals which stimulate a defense response, including cell division, on pods of peas containing the Np allele, but when grown in UV-free light very little cell division (neoplasm) occurs. This line is potentially useful for studies of bruchin responses without the problems of neoplasm formation. He is developing suitable lines from this accession.
16. **Oscar Riera Lizarazu**, Dept. of Crop and Soil Science, Oregon State University, Corvallis, OR 97331.  
A large number of wheat lines were planted for observation at Hyslop farm. The major interest with this material is resistance to stripe rust (*Puccinia striiformis*). He plans to repeat the study next year. M.S. student Vamsi Nalam completed his thesis research on rachis brittleness and free-threshing trait, two very important traits in the evolution of wheat.
17. **Robert Martin**, USDA-ARS Hort Crops Research Lab, 3420 NW Orchard Street, Corvallis, OR 97330  
Bob Martin's lab has used *Rubus*, *Fragaria*, *Mentha* and *Vaccinium* materials from the germplasm repository in Corvallis over the past two years to characterize viruses that cause

diseases in these hosts. The work on mint led to several publications on the characterization of three viruses involved in a veinbanding responsible for the yellow veins in the ornamental mint *Mentha gracilis* 'Variegata' and the identification of two other viruses of mint associated with veinbanding in *M. spicata*. The *Fragaria* material was primarily from the collection of virus-infected clones and this allowed them to characterize *Fragaria chiloensis* latent virus, Strawberry pallidosis associated virus, Beet pseudo-yellows virus, Strawberry necrotic shock virus, and to identify Apple mosaic virus in strawberry. *Rubus multibracteatus* (PI 618457) was used to identify Raspberry bushy dwarf virus in material from China, and nucleotide sequencing demonstrated that this virus was not a contamination of the plants after it arrived in North America. The Corvallis Repository has been a valuable resource for work with viruses of small fruit crops since in many cases they have the only reference isolates available. Several publications from this research are listed below.

18. **Chad Finn**, USDA-ARS Hort Crops Research Lab, 3420 NW Orchard Street, Corvallis, OR 97330

The USDA-ARS small fruit breeding program has cultivar and germplasm development as broad overlapping objectives. The cultivar development program focuses on blackberry, strawberry, blueberry and red and black raspberry but also looks at minor crops. This includes evaluation of species, crosses of superior species germplasm with cultivated material, and repeated backcrosses to pull new sources of variability or traits of interest into the cultivar development program. We currently have substantial efforts with *Rubus ursinus*, *R. leucodermis*, *R. occidentalis*, *R. niveus*, *R. coreanus*, *R. idaeus*, *R. parvifolius*, *R. caucasicus*, *Vaccinium membranaceum*, *V. ovalifolium*, *V. deliciosum*, *Fragaria virginiana*, and *F. chiloensis* along with very minor or unsuccessful efforts with other species.

19. **Kim Hummer**, USDA-ARS-NCGR, Peoria Road, Corvallis, OR 97333

Andrey Sabitov, visiting scientist from Vladivostok, Russia, germinated seeds of *Ribes* species (*Ribes bracteosum*, *R. dikuscha*, *R. fontaneum* & *R. hudsonianum*), and inoculated the seedlings with powdery mildew spores. Resistant seedlings were added to the collection. These species were previously underrepresented in the Repository collection. More than 75% of the seedlings were resistant in *R. dikuscha* PI638105 and PI638108, *R. fontaneum* PI638044 and PI638052, and *R. hudsonianum* PI555813.

20. **Heather Smith, Farmer Cooperative Genome Project**, 30848 Maple Dr. Junction City, OR 97448.

Since 1999, The Farmer Cooperative Genome Project (FCGP) has distributed germplasm from the National Plant Germplasm System, instructional materials, and germplasm characterization forms to farmer and gardener participants nationwide. The goal of the FCGP is to increase farmer participation in germplasm conservation and development. Seed from the NPGS is distributed by the FCGP to accurately describe them, and evaluate them for use in breeding vegetables for organic growing conditions. Of the 1185 accessions distributed since 1999, 211 evaluations have been returned for an 18% return rate. Notable findings in 2002 include:

accessions from NC-7:

- *Zea mays* Ames 1832 matured 78-82 days from seed and had a very sweet flavor.
- *Cucumis sativus* var. *sativus* PI 197088 had just under average yields, but made great naturally fermented pickles.
- *Brassica napus* Ames 22969 germinated well, possessed a nice color, and rich buttery flavor. Flavor is described as much better than your average turnip.
- *Cucumis melo* PI 136171 showed good resistance to the cucumber beetle, but possessed hard, inedible fruits. PI 357794 was tasteless, and possessed a very poor shelf life. Both varieties had off-types present.

accessions from NE-9:

- *Brassica oleracea* var. *botrytris*
- PI 430487 had 82% germination, one off-type, and 11-16 cm domed heads, with tight curd, and good flavor
- PI 188562 showed some purpling on 9-12 cm heads, with a fairly loose curd, and a mildly sweet flavor. 50% of the plants produced side shoots.
- PI 244838 had uniform maturity, moderately tight curd, and good flavor.
- PI 115881 was highly variable, and possibly more like broccoli than cauliflower. The flavor was not notable.
- PI 204764 possessed heads that were moderately well-wrapped and self-blanching. The flavor was described as “tasty and sweet”.
- PI 208474 showed uniform maturity and size, and good flavor.

accessions from W-6:

- *Phaseolus vulgaris* PI 182000 was a vigorous, tall climber with abundant foliage. They produced abundant fruit all season and into the fall. Flavor was described as “as good as any green bean, though not outstanding”. Green beans were neither tough nor stringy.
- *Lactuca sativa* PI 171676 was light green with ruffled edges, and slightly tougher than the standard Black-seeded Simpson.
- *Pisum sativum* PI 206809 had very poor germination, possibly due to heavy rains just after planting. Vines did not require support, and the flattened, round peas matured in 59 days. The plants were not resistant to mildew.

21. **Todd Wilson**, Mill Creek Nursery, 12405 Fishback Road, Monmouth, Oregon 97361

Scions of flowering apricot (*Prunus mume*) were requested and successfully grafted on peach and plum rootstocks. They have not yet bloomed. He is interested in importing additional cultivars of this species from a Japanese nursery.

22. **Rick Jorgensen**, Nunhems USA, 8850 59<sup>th</sup> Ave. NE, Brooks, OR 97305.

*Allium cepa* (PI 28689 92CL) was requested as a possible source of low pungency. After evaluation, it was decided that the accession was inadequate and not used further.

23. **Chad Miebach**, Radix Research, 9176 Bates Road, Aumsville, Oregon 97325.

Accessions of several species were used as standards in PVP trials. Other accessions were requested for evaluation and possible use in breeding. These include 52 accessions of *Poa bulbosa* which are currently being evaluated in Oregon and Arizona, and two accessions of *Lavendula stoechas* which are scheduled for evaluation in Hawaii starting in 2005.

24. **Tami Brown**, Advanta Seeds Pacific, Albany, OR 97321.
25. **Don Floyd**, Pickseed West, 30190 Highway 34 SW, Albany, OR 97321 requested samples of *Agrostis*, *Festuca*, *Lolium*, and *Poa* for use in PVP trials
26. **Sandra Susee**, Pure Seed Testing, P.O. Box 449, Hubbard, OR 97032 Grass accessions were used as standard in turf trials.
27. **Virginia Lehman**, Blue Moon Farm, 811 Mountain River Drive, Lebanon, OR 97355. Materials are still under evaluation.
28. **Farid Sardar** and **Leah Brilman**, Seed Research of Oregon, 27630 Llewellyn Road, Corvallis, Oregon 97333.
29. **Kathy Florence** and **Steve Johnson**, Cebeco International Seeds, 175 West "H" Street, Halsey, Oregon 97348.
30. **Doug Cattani** and **Jim R. Frelich**, The Scotts Company, 7644 Kenne Road NE, Gervais, Oregon 97026
31. **Joseph K. Wipff**, Barenbrug USA, West Coast Research Center, 36030 Tennessee Road, Albany, Oregon 97322
32. **Tom Brentano**, Novel AG, 19664 Bernards Lane NE, St. Paul, Oregon 97137.

Grass breeders at private companies in the Willamette Valley use the W-6 collections extensively. Pullman is the source of standard cultivars for PVP trials, and a source of germplasm that is under evaluation for a wide array of traits.

33. **Tom Johns**, London Spring Farms, 73416 Abeene Lane, Cottage Grove, Oregon 97424.  
A large number of accessions of pea (*Pisum sativum*), melon (*Cucumis melo*), cucumber (*Cucumis sativus*), watermelon (*Citrullus lanatus*), brassicas, squash (*Cucurbita pepo*), lettuce (*Lactuca sativa*), tomato (*Lycopersicon esculentum*), and pepper (*Capsicum annuum*) were requested for evaluation and possible seed production for the Territorial Seed Company catalog.

34. **Paul Wiley**, 17571 NE Hillsboro Highway, Newberg, OR 97132.  
'Chehalem' blackberry was requested and will be used to establish a small commercial production field. It was requested for its flavor and color, and will be used to make specialty jams. 'Chehalem' is no longer available from commercial nurseries.

35. **Joseph Hardison**, 1125 South West Stopp Place, Corvallis, OR 97333.  
Seeds were requested of *Poa pratensis* PI 119684 but found it to be unsatisfactory due to susceptibility to powdery mildew and leaf rust.

36. **Daisy Hernandez**, 1665 Manzanita Street NE, Keizer, OR 97303  
She requested five cuttings of 'Noir de Bourgogne', the black currant cultivar used in France to make Cassis liqueur. All five cuttings rooted and are now producing berries.

37. **Richard Hardt**, 2199 Baily Hill Road, Eugene, OR 97405  
Evaluations are continuing of minor fruits for drought tolerance and suitability for home garden use. Pear, quince, black currant and gooseberry are being evaluated. Softwood cuttings of gooseberry rooted well.

38. **Dave Rabon**, 328 SE Walnut Street, Hillsboro, Oregon 97123.

He requested runners of strawberry PI 551842 to add heirloom strawberries to his home garden. The runners had no roots. He was unable to get them to root and they did not survive.

39. **Dianne Wood**, 47893 Cornucopia Hwy., Halfway, Oregon 97834.

Runners of 'Marshall' strawberry were requested. She did not understand that they would come with no roots. She was unable to keep them alive long enough to grow roots.

40. **Wayne F. Hess**, 5316 SW Erickson Avenue, Beaverton, OR 97005

Strawberry plants received in 2004 were planted and are now fruiting. He will plant a strawberry patch in his community garden.

### **Publications:**

Andrie, R.M., and L.M. Ciuffetti. 2005. Is a homolog of a host-selective toxin from *Pyrenophora tritici-repentis* at work in the *Pyrenophora bromi*-bromegrass interaction? Poster presented at the 2005 23<sup>rd</sup> Fungal Genetics Conference, Asilomar, CA.

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