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ANNUAL REPORT OF COOPERATIVE REGIONAL PROJECTS

Supported by Allotments of the Regional Research Fund
Hatch Act, as Amended August 11, 1955
January 1 to December 31, 1993

1. **PROJECT: Regional Research Project S-009**
Plant Genetic Resources Conservation and Utilization

2. **COOPERATING AGENCIES AND PRINCIPAL INVESTIGATORS:**

State Agricultural Experiment Station Representatives

GA	W. D. Branch* (Chairman)	NC	W. T. Fike*
AL	J. A. Mosjidis*	OK	J. Kirby*
AR	T. E. Morelock*	PR	R. V. Colon*
FL	G. M. Prine*	SC	B. B. Rhodes*
HA	P. J. Ito*	TN	D. L. Coffey*
KY	N. Taylor*	TX	F. Hons*
LA	D. LaBonte*	VA	R. E. Veilleux*
MS	C. E. Watson*		

Administrative Advisor — G. F. Arkin

U. S. Department of Agriculture

Co-Administrative Advisor, ARS	M. E. Carter
Natl. Genetic Res. Program, ARS	H. L. Shands
Germplasm Resources Lab, ARS	G. A. White*
National Seed Storage Lab, ARS	S. A. Eberhart
NCGR-Subtrop. Hort. Res. Stn., ARS	R. J. Schnell
NCGR-Tropical Fruit, ARS	F. T. Zee
Tropical Agri. Res. Stn., ARS	F. Vazquez
Northern Reg. Res. Center, ARS	R. Kleiman
Cooperative State Res. Serv., Rep.	D. A. Sleper
Soil Conservation Service	H. W. Everett*

Plant Genetic Resources Conservation Unit,
Cooperative ARS and SAES

Regional Coordinator	S. Kresovich
Research Plant Pathologist	A. G. Gillaspie
Research Horticulturist	R. L. Jarret
Curator, Agronomist	G. R. Lovell
Curator, Agronomist	R. N. Pittman
Curator, Agronomist	J. B. Morris

* Indicates voting members of the Technical Committee

3. **PROGRESS OF WORK AND PRINCIPAL ACCOMPLISHMENTS:**

Genetic resources representing 727 new accessions were received and processed into the Unit collections. Distributions of seeds and vegetative clones totaled 23,531 in response to 752 requests. The Southern region received 10,462; NC-7 1,313; NE-9 457; W-6 1,120. Ninety-four requests from 42 countries received 2,681 packets of seed. Regeneration of 3,239 accessions were conducted by Unit staff and cooperators in several states (AL, CA, FL, NM, PR, TX).

Approximately 120 new accessions of sweetpotato were received as vine cuttings from Plant Quarantine. These were introduced to *in vitro* culture and are available for distribution. All of these accessions were grown in the field and characterized for 20 morphological traits. Funding was obtained through the Plant Collection Office for a trip to New Guinea in cooperation with Louisiana State University and the Papuan Department of Agriculture and Livestock. This trip assessed the feasibility of collecting and introducing sweetpotato germplasm as botanical seed. Six hundred *in vitro* propagules of sweetpotato were distributed nationally and internationally. Twenty-eight accessions of *Ipomoea* spp. were increased in the greenhouse.

Over 8,400 *Arachis* spp. accessions, both cultivated and wild, were maintained for distribution. Work continued on the elimination of PMV, PStV, and TStW from wild peanuts using meristem culture. Greenhouse increases were done for materials with low germination, low seed number, or recently released from quarantine. Eleven new accessions from Mexico, collected by Dr. David Williams, were grown in a greenhouse in Stephenville, Texas by Dr. Charles Simpson. Eighty requests for 2,478 accessions of peanuts were received. Order types were for distribution (foreign: six requests for 502 accessions; domestic: 31 requests for 836 accessions), observations (domestic: 29 requests for 796 accessions), replenishment (domestic: 11 requests for 419 accessions), and backup (NSSL: 24 accessions and transfer: one accession).

The *Citrullus lanatus* selections with the most promising resistance to watermelon mosaic virus were found to be 'Egun' (Nigeria), PI 189316 and 189317 (Zaire), and 244018 and 244019 (South Africa). Egun has been selfed 5 times and sibbed and the others have been selected through S_3 or S_4. Tests on 60 accessions of cowpea from Botswana indicated the presence of blackeye cowpea mosaic, cowpea aphid-borne mosaic, and southern bean mosaic viruses in one or more of the accessions. Tests employing greenhouse and screenhouse production of disease-free seed were conducted.

Several unidentified viruses have been detected in the 1993 legume regeneration plots at Griffin and work continues with host range, serology, electron microscopy, and electrophoretic techniques to identify these isolates.

In complement to the curatorial efforts, an Applied Genetic Analysis Laboratory, complete with DNA sequencing, synthesis, and amplification capabilities, has been established. Primary efforts have been directed toward assisting curators with issues of genetic identity, relatedness, and structure. Tangible "products" from the effort include development of markers, technology, and analytical methods to assist curators and users of the genetic resources.

4. **USEFULNESS OF FINDINGS:**

Results obtained through this project at the regional repository, state experiment stations, and by private industry are mutually beneficial to plant scientists (both basic and applied), and subsequently to the public. Desirable traits found in accessions can be used to develop superior cultivars thereby increasing the efficiency and quality of production. Through the work at the regional repository, genetic representation of agriculturally important crops and their wild relatives is maintained for future use. New information gained from cultural studies of potential crops may lead to greater diversification of agriculture.

5. **WORK PLANNED FOR NEXT YEAR:**

Priorities for 1994 include expanded and enhanced database and regeneration efforts. To accomplish these priorities, we plan to install a local area network, complete the -20C seed storage facility, complete the irrigation system for the seed regeneration area, and employ or redirect staff efforts. Complementary studies in genetics and plant pathology will be directed to support curatorial actions.

6. **PUBLICATIONS ISSUED OR MANUSCRIPTS APPROVED DURING THE YEAR:**

A list of publications related to acquisition, evaluation, and use of plant genetic resources in the Southern Region are listed in Supplement I to this report.

7. **APPROVED:**

Wm. D. Branch

William D. Branch
Chairman, Technical Committee

3/7/94
DATE

Gerald F. Arkin
Administrative Advisor

3/10/94
DATE

Publications Related to Evaluation and Use of Plant Germplasm in the S-9 Region, 1993

ALABAMA

Chambliss, O.L. and A.G. Hunter. 1993. Evaluation of Vigna uniquiculata germplasm for insect resistance. HortScience 28:456 (Abstr.)

Mosjidis, J.A., R. Rodriguez-Kabana, and C.M. Owsley. 1993. Reaction of Three Cool-Season Annual Legume Species to Meloidogyne arenaria and Heterodera glycines. Nematropica 23:35-39.

Mosjidis, J.A. and X. Zhang. 1993. Root development of Vicia spp. at different temperatures. Agronomy Abstracts. p. 192.

Mosjidis, J.A. and X. Zhang. 1993. Breeding system of several Vicia species. Summaries of Invited (spoken) Papers and Poster Papers for Sessions 1-24, p. 15. XVII International Grassland Congress. Opening Congress, Palmerston North, New Zealand, 8-12 February 1993.

Qui, J. and J.A. Mosjidis. 1993. Relationships among maximum hypocotyl length, seed weight, and emergence in sericea lespedeza. Agronomy Journal 85:995-998.

Qiu, J. and J.A. Mosjidis. 1993. Screening Lespedeza cuneata accessions for hypocotyl elongation. Summaries of Invited (spoken Papers and Poster Papers for Sessions 1-24, p. 32. XVII International Grassland Congress. Opening Congress, Palmerston North, New Zealand, 8-12 February 1993.

Zhang, X. and J.A. Mosjidis. 1993. Isozyme polymorphism in Vicia species. Agronomy Abtracts. p. 197.

Zhang, X. and J.A. Mosjidis. 1993. Effects of photoperiod and temperature on flowering and seed setting of Vicia articulata Hornem and V. lutea L. Abstracts of technical papers. Southern Branch of American Society of Agronomy. p. 10.

ARKANSAS

Wasilwa, L.A., J.C. Correll, T.E. Morelock, and R.E. McNew. 1993. Re-examination of races of the Curcurbit anthracnose pathogen Collitotrichum orbiculare. Phytopathology 83:1190-1198.

GEORGIA

Anderson, W.F., C.C. Holbrook, and T.B. Brenneman. 1993. Resistance to Cercosporidum personatum within peanut germplasm. Peanut Sci. 20:53-57.

Branch, W.D. 1993. Peanut research. pp. 76-84. In M.H. Bass (ed.) The UGA Coastal Plain Experiment Station - The First 75 Years. UGA/CPES Tifton, GA.

Branch, W.D. 1993. Registration of variegated-leaf peanut genetic stock. Crop Sci. 33:362.

Branch, W.D. and T.B. Brenneman. 1993. White mold and Rhizoctonia limb rot resistance among advanced Georgia peanut breeding lines. Peanut Sci. 20:124-126.

Halward, T., H.T. Stalker, and G. Kochert. 1993. RFLP linkage map of diploid peanut (Arachis sp.) (2n=2x=20). In: Genetic Maps Sixth Edition. ed. S.J. O'Brien. Cold Spring Harbor Press.

Halward, T., H.T. Stalker, and G. Kochert. 1993. Peanut RFLP mapping. In: DNA-based Markers in Plants. eds. I. Vasil and P.R. Kluer. Kluer Academic Press, New York (in press).

Hanna, W.W. 1993. Registration of pearl millet parental lines, Tift 8677 and A_1/B_1 Tift 90 D_2E_1. Crop Sci. 33:1119.

Hanna, W.W. and H.D. Wells. 1993. Registration of parental line Tift $89D_2$, rust resistant pearl millet. Crop Sci.33:361-362.

Hanna, W.W., B.R. Wiseman, and R.R. Duncan. 1993. Registration of Tift MR 9110, Tift MR 9115 and Tift MR 9120 midge resistant sorghum germplasm. Crop Sci. 33:1118.

Holbrook, C.C. , W.F. Anderson and R.N. Pittman. 1993. Selection of a core collection from the U.S. germplasm collection of peanut. Crop Sci. 33:859-861.

Kochert, G., T. Halward, and H.T. Stalker. 1993. Genetic variation in peanut and its implications in plant breeding. In: Advances in Legume Science. (in press).

Li, Z., R. L. Jarret, R.N. Pittman, K.B. Dunbar, and J.W. Demski. 1993. Efficient plant regeneration from protoplast of Arachis paraguariensis. Chod. et Hassl. using a nurse culture method. Plant Cell, Tissue, and Organ Culture 34:83-90.

Yang, G., K.E. Espelie, J.W. Todd, A.K. Culbreath, R.N. Pittman, and J.W. Demski. 1993. Cuticular lipids from wild and cultivated peanuts and the relative resistance of these species to fall armyworm and thrips. J. Agric. Food & Chem. 41:814-818.

KENTUCKY

Baker, E.L., M. Collins, and N.L. Taylor. 1993. Developmental patterns and hay drying effects of red clover stem trichomes. p. 235-239. In Proc. Am. Forage and Grassl. Council. 29-31 March 1993. Ames, IA.

MISSISSIPPI

Catano, H.O. 1993. Breeding for resistance to root-knot nematode in maize. M.S. Thesis. Mississippi State Univ., p. 68.

McCarty, J.C. and J.N. Jenkins. 1993. Registration of 79 day-neutral primitive cotton germplasm lines. Crop Sci. 33:351.

M'Ragwa, L.F.R. 1993. Divergent selection for seedling root length and coleoptile length in pearl millet [Pennisetum glaucum (L.) R. Br.] and effects on seedling emergence, seedling vigor, and agronomic traits. Ph.D. Dissertation, Mississippi State Univ., p. 187.

M'Ragwa, L.R.F., C.E. Watson, and L.M. Gourley. 1993. Effects of selection for seedling root length and coleoptile length on field seedling emergence and shoot height in pearl millet. American Society of Agronomy Annual Meeting. Cincinnati, OH. 7-12 Nov. 1993. Agron. Abstr. p. 95.

Ortegon, J., L.M. Gourley, C.E. Watson, Jr., and N. Zummo. 1993. Pathogenicity of Fusarium moniliforme on sorghum genotypes in aluminum supplemented low pH nutrient culture. American Society of Agronomy Annual Meeting. Cincinnati, Oh. 7-12 Nov. 1993. Agron. Abstr., p. 96.

Tang, B., J.N. Jenkins, J.C. McCarty, and C.E. Watson. 1993. F_2 hybrids of host plant resistant germplasm and cotton cultivars. I. Combining ability for lint yield and yield components. Crop Sci. 33:700-705.

Tang, B., J.N. Jenkins, J.C. McCarty, and C.E. Watson. 1993. F_2 hybrids of host plant resistant germplasm and cotton cultivars. II. Heterosis and combining ability for fiber properties. Crop Sci. 33:706-710.

Widstrom, N.W., W.P. Williams, B.R. Wiseman, and F.M. Davis. 1993. Registration of GT-FAWCC(C5) Maize germplasm. Crop. Sci. 33:1422.

Zake, V.M. 1993. Inheritance of tolerance to soil acidity and effects on agronomic characteristics and leaf mineral element concentrations in sorghum [Sorghum bicolor (L.) Moench]. Ph.D. Dissertation, Mississippi State Univ., p. 228.

Zake, V.M., C.E. Watson, Jr., L.M. Gourley, and R.B. Clark. 1993. Combining ability for leaf mineral content of sorghum on infertile, acid soils in Kenya. American Society of Agronomy Annual Meeting. Cincinnati, OH. 7-12 Nov. 1993. Agron. Abstr. p. 106.

OKLAHOMA

Baker, C.A., D.A. Porter, and J.A. Webster. 1992. Inheritance of Russian wheat aphid resistance in a hard red winter wheat. Agron. Abstr. p. 89.

Baker, C.A., D.R. Porter, and J.A. Webster. 1993. Inheritance of Russian wheat aphid resistant in two spring wheats. Agron. Abstr. p. 81.

Baker, C.A., J.A. Webster, and D.R. Porter. 1992. Characterization of Russian wheat aphid resistance in a hard white spring wheat. Crop Sci. 32:1442-1446.

Baker, C.A., J.A. Webster, and D.R. Porter. 1992. Mechanisms of Russian wheat aphid resistance: identification of antiboisis in hexaploid wheat, pp. 90-93. In: W.P. Morrison (comp.) Proceedings of the 5th Russian Wheat Aphid Conference. Great Plains Agric. Counc. Pub. 142.

Burd, J.D., R.L. Burton, and J.A. Webster. 1993. Evaluation of Russian wheat aphid damage on (Homoptera: Aphididae) resistant and susceptible hosts, with comparisons of damage ratings to quantitative plant measurements. J. Econ. Entomol. 86:974-980.

Burd, J.D. and G.W. Todd. 1992. Total chlorophyll and chlorophyll florescence profiles of RWA resistant and susceptible wheat, pp. 101-108. In: W.P. Morris (comp.) Proceeding of the 5th Russian Wheat Aphid Conf. Great Plains Agric. Pub. 142.

Campbell, R.K, and D.K. Reed. 1992. Russian wheat aphid and drought stresses in wheat: tritrophic interactions with plant resistance and a parasitoid, pp. 224-234. In: W.P. Morrison (comp.) Proceedings of the 5th Russian Wheat Aphid Conf. Great Plains Agric. Counc. Pub. 142.

Kindler, S.D., L.G. Greer, and T.L. Springer. 1992. Feeding behavior of the Russian wheat aphid (Homoptera: Aphididae) on wheat and resistant and susceptible slender. J. Econ. Entomol. 85:2012-2016.

Kindler, S.D., K.B. Jensen, and T.L. Springer. 1993. An overview: Resistance to the Russian wheat aphid within the perennial Triticeae. J. Econ. Entomol. 86:1609-1618.

Miller, H.L. and D.R. Porter. 1993. Physiological effects of Russian wheat aphid on a resistant and susceptible barley. Agron. Abstr., S. Branch. p. 15.

Miller, H.L. and D.R. Porter. 1993. Inheritance of Russian wheat aphid resistance in a winter wheat, PI 149898. Agron. Abstr., S. Branch. p. 15.

Mornhinweg, D.W and D.R. Porter. 1992. Effect of Russian wheat aphid on yield and yield components of barley. Agron. Abstr. p. 108.

Pair, J.C., R.A. Keen, C.M. Taliaferro, D.L. Martin, J.F. Barber, and R.N. Carrow. 1994. Registration of 'Midlawn" Turf Bermudagrass. Crop Sci. 34:306-307.

Pair, J.C. R.A. Keen, C.M. Taliaferro, D.L. Martin, J.F. Barber, and R.N. Carrow. 1994. Registration of 'Midfield' Turf Bermudagrass. Crop. Sci. 34:307.

Porter, D.R. 1992. Russian wheat aphid-induced protein profile alterations in barley, pp. 99-100. In: W.P. Morrison (comp.) Proceedings of the 5th Russian Wheat Aphid Conference. Great Plains Agric. Counc. Pub. 142.

Porter, D.R. 1992. New sources of resistance to greenbug in wheat. Proc. Greenbug Workshop. Kansas State Univ. 1 p.

Porter, D.R., C.A. Baker, and J.A. Webster. 1992. Russian wheat aphid-induced protein alterations in spring wheat. Agron. Abstr. pp. 195-196.

Porter, D.R., R.A. Veal, J.A. Webster, and R.L. Burton. 1992. Current status of greenbug resistance efforts. Proc. 19th Hard Red Winter Wheat Work. Conf. pp. 40-41.

Porter, D.R., J.A. Webster, and C.A. Baker. 1993. Russian wheat aphid-induced protein alterations in spring wheat. Agron. Abstr., S. Branch. p. 10.

Porter, D.R., J.A. Webster, and C.A. Baker. 1993. Detection of resistance to the Russian wheat aphid in hexaploid wheat. Plant Breeding 110:157-160.

Porter, D.R., J.A. Webster, R.L. Burton, and E.L. Smith. 1993. Registration of GRS1201 greenbug multi-biotype-resistant wheat germplasm. Crop Sci. 33:1115.

Puterka, G.J., J.D. Burd, and R.L. Burton. 1992. Biotype variation in a worldwide collection of Russian wheat aphid (Homoptera: Aphididae). J. Econ. Entomol. 85:1497-1506.

Reed, D.K. J.D. Burd, N.C. Elliott, and R.K. Campbell. 1993. Aspects of tritrophic interactions of the Russian wheat aphid, pp. 109-113. In: R.D. Lumsden and J.L. Vaughn (ed) Pest Management. Biologically Based Technologies, Am. Chem. Soc., Washington, D.C.

Taliaferro, C.M., T.L. Springer, and R.M. Ahring. 1994. Registration of 'Bison' Buffalograss. Crop Sci. 34:304-305.

Webster, J.A., F. Dutolt, and T.W. Popham. 1993. Fecundity comparisons of the Russian wheat aphid (Homoptera: Aphididae) in

Bethlehem, South Africa, and in Stillwater, Oklahoma. J. Econ. Entomol. 86:544-548.

Webster, J.A., D.R. Porter, C.A. Baker, and D.W. Mornhinweg. 1993. Russian wheat aphid (Homoptera: Aphididae) resistance in barley: Effects on aphid feeding. J. Econ. Entomol. 86:1603-1608.

PUERTO RICO

No publications.

TEXAS

Grichar, W.J. and O.D. Smith. 1992. Interaction of tillage and cultivars in peanut production systems. Peanut Sci. 19:95-98. (P.I. 407492 = 55-437)

Grichar, W.J. and O.D. Smith. 1992. Variation in yield and resistance to southern stem rot among peanut (Arachis hypogaea L.) lines selected for pythium pod rot resistance. Peanut Sci. 19:55-58. (P.O. 365553 and 475871)

Miller, F.R., C. Domanski, and L. Giorda. 1992. Registration ABTxARG-1 Sorghum. Crop Sci. 32:1517.

Miller, F.R., R. Clara, and V. Guiragossian. 1992. Registration of A/BTx635 Sorghum. Crop Sci. 32:1517-1518.

Miller, F.R., T.F. Dusek, and K.L. Prihoda. 1992. Registration of A2/B2Tx636 and A2/BTx637 Sorhgum. Crop Sci. 32:511-512.

Miller, F.R., T.F. Dusek, and K.L. Prihoda, and L.W. Rooney. Registration of RTx 436 Sorhgum Parental Line. Crop Sci. 32:1518.

N'Doye, O. and O.D. Smith. 1992. Flowering pattern and fruiting characteristics of five short growth duration peanut lines. Oleagineux 47:235-239. (P.I. 407492 = 55-437)

Wells, M.A., W.J. Grichar, and O.D. Smith. 1993. Screening of groundnut breeding lines and cultivars for seed resistance to aflatoxin production, 1991. In APS Biological and Cultural Tests for Control and Plant Diseases. Vol. 8:65.

Wells, M.A., W.J. Grichar, and O.D. Smith. 1993. Screening of groundnut genotypes for seed resistance to aflatoxin production, 1991. In APS Biological and Cultural Tests for Control of Plant Diseases. Vol. 8:64.

Wells, M.A., W.J. Grichar, and O.D. Smith. 1993. Screening of runner groundnut cultivars and breeding lines for seed resistance to aflatoxin production. 1991. In APS Biological and Cultural Tests for Control of Plant Diseases. Vol. 8:66.

Wells, M.A., W.J. Grichar, and O.D. Smith. 1993. Screening of spanish groundnut genotypes for seed resistance to aflatoxin production, 1991. In APS Biological and Cultural Tests for Control of Plant Diseases. Vol. 8:67.

Wells, M.A., W.J. Grichar, and O.D. Smith. 1993. Screening of spanish groundnut cultivars and breeding lines for seed resistance to aflatoxin production, 1991. In APS Biological and Cultural Tests for Control of Plant Diseases. Vol. 8:68.

Wells, M.A., W.J. Grichar, O.D. Smith, and D.H. Smith. Comparison of peanut germplasm lines response to leafspot and southern blight. Oleagineux (in press). (PI's 393531, 393646, 390595, 393516, 393526, 407454, 414331, 298115, 270806, 341879, 414332, 315608, 350680, 393527, 393517, 215696, 393646, 390593, 405132, 381622, 314817, 259747, 414332, 393641)

VIRGINIA

Coffelt, T.A. and D.M. Porter. 1992. Preliminary evaluation of peanut plant introductions for minimum descriptors and resistance to two diseases. Amer. Peanut Res. and Education Soc., Inc. 1991. Proceedings 23:21 (Abstr.)

Hilu, K.W. and J.L. Johnson. 1992. Ribosomal DNA variation in finger millet and wild species of Eleusine (Poaceae). Theor. Appl. Genet. 83:895-902.

PLANT GENETIC RESOURCES CONSERVATION

Gillaspie, A.G., Jr. and J.M. Wright. 1993. Evaluation of Citrullus sp. germplasm for resistance to watermelon mosaic virus 2. Plant Disease 77:352-354.

Gillaspie, A.G., Jr., M.S. Hopkins, and D.L. Pinnow. 1993. Relationship of cowpea seed-part infection and seed transmission of blackeye cowpea mosaic potyvirus in cowpea. Plant Disease 77:875-877.

Gillaspie, A.G., Jr., and J.M. Wright. 1993. Evaluation of Citrullus sp. for watermelon virus 2 resistance. Phytopathology 83: 465-466.

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NATIONAL SEED STORAGE LABORATORY & NORTHERN REG. RES. CENTER

Abbott, T.A., R. Kleiman, and R. Harry-O'Kuru. 1992. Secondary structure of proteins by fourier transform infrared spectroscopy. Proceedings of the UJNR 21st Annual Panel Meeting, A.E. Pavlath and T.A. Mckeon, Eds. I:1-5.

Abbott, T.P., F.C. Felker, and R. Kleiman. 1992. FTIR microspectroscopy - sample preparation and analysis of biopolymers. Biopolymers Accepted September 18, 1992.

Abbott, T.P., B. Nakamura, W.J. Wolf, D.M. Palmer, H.J. Gasdorf, T.C. Nelsen, and R. Kleiman. 1991. Processes for making animal feed and protein isolates from jojoba meal. J. Ag. & Food Chem. 39(8):1488-1493.

Abbott, T.P., W.I. Wolf, Y.V. Wu, R.O. Butterfield, and R. Kleiman. 1991. FTIR analysis of jojoba protein conformations in D_2O. App. Spectrosc. 45(10)1665-1673.

Abbott, T.P., Y.V. Wu, K.D. Carlson, M. Slodki, and R. Kleiman. Isolation and preliminary characterization of Lesquerella fendleri gums from seed, presscake and defatted meal. J. Ag. Food Chem. In Review.

Carlson, K.D. and R. Kleiman. Chemical survey of commercial varieties of nasturtium, Tropaeolum majus L. J. Am. Oil Chem. Soc. In Review.

Carlson, K.D., R. Kleiman, and R. Pavlik. Prepress solvent extraction of cuphea seed. J. Am. Oil Chem. Soc. Soc. In Review.

Carlson, K.D., S.A. Knapp, A.E. Thompson, J.H. Brown, and G.D. Jolliff. 1992. Nature's abundant variety: New oilseed crops on the horizon. In: New Crops, New Uses, New Markets, 1992 Yearbook of Agriculture. Chap. 19, p. 124-133.

Dierig, D.A., A.E. Thompson, and F.S. Nakayama. 1993. Lesquerella commercialization efforts in the United States. Indus. Crops and Prod. 1:289-293.

Dierig, D.A. and A.E. Thompson. Vernonia and lesquerella potential for commercialization. In: Advances in New Crops. Proceedings of the 2nd National Symposium on New Crops. In Press.

Erhan, S.M., R. Kleiman, and T.A. Isbell. Estolides from Meadowfoam and Unsaturated Fatty Acids. J. Am. Oil Chem. Soc. Accepted February 6, 1993.

Estilai, A., B. Ehdaie, H.H. Naqvi, D.A. Dierig, D.T. Ray, and A.E. Thompson. 1992. Correlations and path analyses of agronomic traits in guayule. Crop Sci. 32:953-957.

Estilai, A., B. Ehdaie, H.H. Naqvi, D.A. Dierig, D.T. Ray, and A.E. Thompson. 1992. Rubber and resin yield performance of new guayule selections. Agron. J. 84:420-424.

Glaser, L.K., J.C. Roetheli, A.E. Thompson, R.D. Brigham, and K.D. Carlson. 1992. Castor and lesquerella: Sources of hydroxy fatty

acids. In: New Crops, New Uses, New Markets, 1992 Yearbook of Agriculture. Chap. 17, p. 110-117.

Graham, S.A. and R. Kleiman. 1992. Composition of seed oils in some Latin American Cuphea (Lythraceae). Indus. Crops and Prod. 1:31-34.

Hayes, D.G. and R. Kleiman. 1992. Recovery of hydroxy fatty acids from lesquerella oil using lipases. J. Am. Oil Chem. Soc. 69(10):982-985.

Hayes, D.G. and R. Kleiman. 1992. The isolation and recovery of fatty acids with Delta 5 unsaturation from meadowfoam oil using lipase catalyzed hydrolysis and esterification. J. Am. Oil. Chem. Soc. Accepted March 8, 1993.

Hayes, D.G. and R. Kleiman. 1,3 Specific lipolysis of Lesquerella fendleri oil by immobilized and reverse micellar encasulated enzymes. J. Am. Oil Chem. Soc. In Review.

Kleiman, R., and L.H. Princen. 1991. New oilseed crops. Proceeding of the World Conference on Oleochemicals: Into the 21st Century. T.H. Applewhite, Ed. pp. 127-132.

Isbell, T.A., R. Kleiman, and S.M. Erhan. 1992. Characterization of monomers produced from the thermal high pressure conversion of meadowfoam and oleic acids into estolides. J. Am. Oil Chem. Soc. 69(12):1177-1183.

Isbell, T.A., R. Kleiman, and B.A. Plattner. Acid catalyzed condensation of oleic acid into estolides and polyestolides. J. Am Oil Chem. Soc. In Review.

Ray. D.T., D.A. Dierig, A.E. Thompson, and M.M. Diallo. Parent-offspring relationships in apomictic guayule. J. Am. Oil. Chem. Soc. In Press.

Ray, D.T., A.E. Thompson, and D.A. Dierig. Variability for yield components among apomictic guayule lines developed from a very narrow germplasm base. Indus. Crops and Prod. In Press.

Roath, W.W., M.P. Widrlechner, and R. Kleiman. 1992. Morphological and agronomic variability in Cuphea viscosissima Jacq. Indus. Crops and Prod. 1:5-10.

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