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SADC/ ICRISAT/ INTSORMIL

PROGRAM COMPLETION REPORT

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INTRODUCTION

This report is presented as a summary of the SADC/ICRISAT training program for which INTSORMIL served as the Contractor. Since this is a comprehensive report, it includes a brief explanation of the creation and rationale for this training component. It additionally contains an accounting, by country, of sponsored participants involved with this development project.

The ten member states of the Southern African Development Conference identified the need for agricultural development of the marginal rainfall areas in the region. As a result, the SADC/ICRISAT Regional Sorghum and Millet Research Program was established in May 1984 to initiate research on sorghum and millet better adapted for these areas of limited precipitation. The program was implemented by the International Crops Research Institute for Semi-Arid Tropics (ICRISAT) and funded by the U.S. Agency for International Development (USAID), the Canadian International Development Agency (CIDA) and the German Agency for Technical Cooperation (GTZ).

In addition to the focus on research support and improvement, long-term training has also been a principal goal of the program. The emphasis on human resource development is to strengthen the scientific and technical research capability of the SADC National Agricultural Research Systems (NARS) through advanced degree and technical training. To efficiently accomplish this

objective, ICRISAT sub-contracted the advanced degree training element to INTSORMIL, the International Sorghum and Millet Collaborative Research Support Program (CRSP), where necessary U.S. linkages and expertise were established.

The program was designed to provide advanced degrees in specific sorghum and millet disciplines to qualified SADC research officers, as identified and requested by host country governments. A revision to the program in 1988 resulted in discipline expansion to the core areas of agronomy, breeding, economics, entomology, food science and pathology. Incorporated into these six core majors are agrometeorology, biometrics, forages, seed technology, weed science and soil science.

The original nine SADC member countries were Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe. Namibia became the tenth member state of SADC. Six Namibian candidates were nominated by the government soon after SMIP (Sorghum Millet Improvement Project) made an official visit to Namibia; however, INTSORMIL was unable to accommodate placement of these candidates because of the time constraint in completing their program. SADC/ICRISAT in Zimbabwe has attempted to address the Namibian student training needs on a regional basis.

SYNOPSIS

The INTSORMIL linkage has provided the advantage of capturing approximately ninety percent of U.S. expertise in the area of sorghum and millet research. The two core activities of INTSORMIL are collaborative research and academic training. These activities are blended together to provide post training backstop and a global link for students to the international agriculture arena. INTSORMIL is experienced in both design and implementation of graduate training programs and has an established global network to facilitate placement of students at appropriate academic institutions.

Several of the key and unique features of the training plan are as follows:

- ▶ **Dynamic process.** Continuous evaluation and revision were intrinsic to the program. This approach ensured a fluid and relevant application.
- ▶ **NARS driven** through the nomination process. Facilities and programs were analyzed to determine the ratio of needed expertise to trained professionals. Participants were nominated who possessed both on-the-job experience and motivational skills which demonstrated that they were good candidates for further professional development.
- ▶ **Interdisciplinary approach** was used. The broadened training base allowed for an expansive development effort throughout the region. This concept provided the added benefit of a more gender equitable dimension to the program.
- ▶ **Attrition biased.** Projects were established for the attrition rate and built into the program to ensure sufficient staffing requirements at each NARS post. Current follow-up data reinforces the attrition theory and the subsequent design of the training program has proven to be a useful feature.
- ▶ **SADC regional research oriented.** Approximately ten percent of the trainees conducted in-country regional research. This element of the program was promoted to directly enhance applicability of the academic training. The research knowledge base, located at Matopos, Zimbabwe, provided expertise, land, and equipment. Resident scientists, while participating in on-going research, were available to accommodate the needs of SADC participants requiring only one or two growing seasons for short-term research project data. Agricultural research conducted in the U.S. were also directed at solving constraints in both the U.S. and SADC wherever feasible.

- ▶ **Short-term professional enhancement activities.** Each trainee was encouraged to attend two professional workshops or seminars yearly during their program duration. This practice was curtailed during the 1992-1993 period of limited funding, but most students attended at least one discipline-specific conference or workshop where they presented a paper or conducted a poster session. Attendance was applicable to their focus of research and further complemented their programs by enabling them to establish contacts with other scientists in their field of study. This allowed them access to the most current research results through conference presentations.

Over the duration of the project, we encouraged and experienced an expansion of university involvement. Originally six universities, Kansas State, Texas A&M, Purdue, Mississippi State, University of Nebraska, and the Universidade Federal de Vicosa in Brazil, were involved in the recruiting effort. Participating universities more than doubled to accommodate specific trainee needs, especially with the expansion of the core disciplines. In the U.S. they included Colorado State, University of Florida, Pennsylvania State, North Carolina State, Texas Tech, Sam Houston State and Southern Illinois. In Canada, participating institutions were the Universities of Guelph and Saskatchewan.

In total, INTSORMIL has placed 87 SADC researchers in universities within the U.S., Brazil and Canada. However impressive the scope of this project might be when considering the quantity of participants trained, it is the quality of that training which is an important component--the applicable expertise scientists bring back to their home countries to expand the knowledge base of agricultural research programs.

COUNTRY PROGRAMS

Angola

The four MSc degree students from Angola attended the Universidade Federal de Vicosa in Brazil and have successfully completed their degrees. Joao Fernandes Jose and Jone Chitengue graduated in 1992 and returned to Angola. Manuel Alfredo and Mpanzo Domingos completed in 1993 and are pursuing advanced degrees in Brazil.

Botswana

Ten students from Botswana have completed their programs; three PhD, five MSc, and two BSc degrees. Keoagile Molapong finished his PhD program at North Carolina State with support from the Government of Botswana. Dollina Malepa withdrew from her program of studies in 1993. All students have returned to Botswana.

Lesotho

Ten students from Lesotho have completed their programs and returned to their home country. This includes two PhD, six MSc and two BSc degrees.

Malawi

Of the thirteen students enrolled in degree programs, ten of the Malawi participants completed their program; five PhD and five MSc degrees. Three students withdrew from their programs and returned to Malawi.

Mozambique

Seven candidates from Mozambique successfully completed their programs, receiving two PhD and five MSc degrees before returning to their home country. Two of the students obtained additional funding support to complete their programs.

Swaziland

Two PhD candidates and two MSc candidates completed studies in the U.S. and Canada before returning home. Sebenzile Matsebula returned home before completing her program and Milton Mkhabela has returned home to finalize his thesis and will receive his PhD degree in 1995. Both Mr. Mkhabela and Ms. Malaza received outside funding support to complete their programs.

Tanzania

Tanzania has probably benefitted the most from the SADC/ICRISAT program, at least in the number of students trained. Of the candidates, fourteen have completed and one student withdrew. J. Felix and A. Mansuetus were in the U.S. to complete back-to-back degrees, MSc and PhD respectively. There were a total of five PhD, nine MSc, and two BSc degrees. Two students, T. Tarimo and O. Mbuya had outside funding to complete their programs.

Zambia

Zambia also had a high number of students trained under the SADC/ICRISAT program. Four students received two degrees; three completed a BSc and MSc degree, and one completed a MSc and PhD. Rachel Ngulube-Msikita and Cassim Masi have received assistantships to complete their MSc and PhD studies, respectively. They are the only two active students still in the U.S. When they complete their programs, Zambia participants will have completed three PhD, eight MSc and three BSc degrees. Two students withdrew before completing their programs.

Zimbabwe

Participants from Zimbabwe have received eleven degrees; four PhD and seven MSc degrees. F. Muza received both an MSc and PhD degree. One student withdrew from the program, but all others have successfully completed and returned to Zimbabwe.

Accomplishments

The SADC/ICRISAT program successfully trained 87 participants. There were 22 participants nominated by the SADC host countries whose programs were not initiated because of timing and/or funding constraints. The training program represents a substantial investment in human resources through the education and development of qualified participants. The goals envisioned by this investment are now being realized. Research centers are better staffed with talented scientists and there is evidence of a greater focus on the organization and implementation of research. INT-SORMIL is pleased to have contributed to this vital development.

SUMMARY

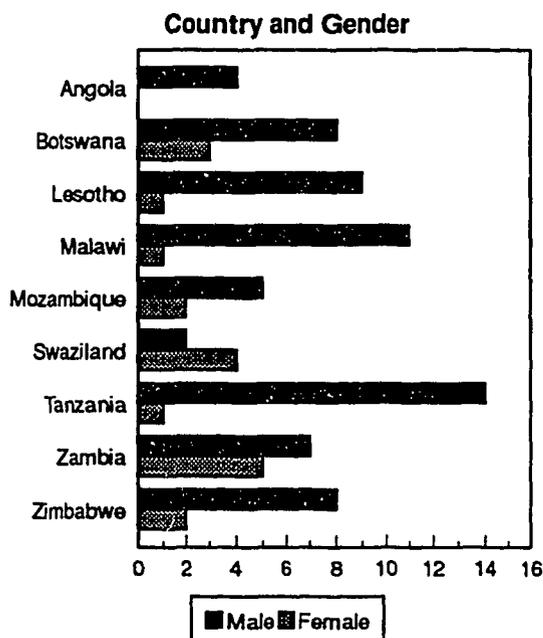
INTSORMIL has processed a total of 87 students encompassing nine SADC countries. Of these 87 students trained, 9 have pursued more than one degree. A total of 84 degrees were awarded -- 25 PhD, 50 MSc and 9 BSc. Two participants are still actively pursuing their degrees in the U.S., with funding for completion from other sources. One student from Swaziland has not yet completed all the requirements for his degree and has returned home to complete his thesis. Nine participants withdrew from their program for a variety of reasons.

The following information shows the distribution of participants by country, gender, discipline and institution. A complete listing of the participants for each country begins on page 17.

The ratio of participants is 68 male and 19 female. The number of women in the program represents 21.8%.

SADC Countries

■ Angola	4
■ Botswana	11
■ Lesotho	10
■ Malawi	12
■ Mozambique	7
■ Swaziland	6
■ Tanzania	15
■ Zambia	12
■ Zimbabwe	10



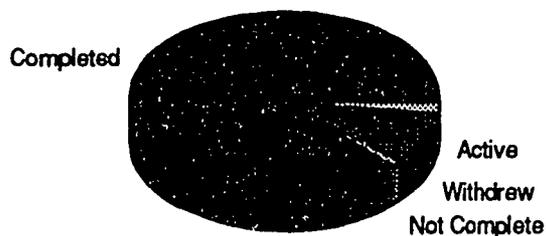
The number of participants trained at each institution are shown below. The core INTSORMIL institutions account for over 82% of the participants trained. This is primarily due to the predominate capabilities of these universities in the core sorghum and millet disciplines--breeding, agronomy, pathology, entomology, economics and food quality. The remaining 18% were enrolled in other institutions to accommodate the specific needs of the participant.

A revision in the scope of the program in 1988 resulted in discipline expansion to incorporate agrometeorology, biometrics, forages, seed technology and plant-soil relations.

Degree by Discipline

Agronomy	24	Breeding	16
Pathology	9	Food Science	9
Entomology	5	FSR/Economics	7
Soil Science	4	Others	10

Summary of Degrees

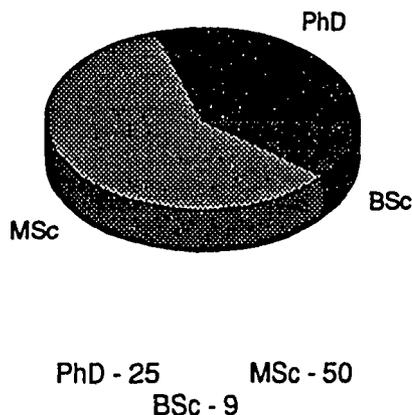


Completed: 84
Withdrew: 9

Not Complete: 1
Active: 2

Participants Trained by Institution

Institution	Students
University of Nebraska	28
Texas A&M University	20
Kansas State University	16
Mississippi State University	8
Purdue University	7
University of Florida	2
Texas Tech University	2
Colorado State University	1
Pennsylvania State University	1
North Carolina State University	1
Sam Houston State University	1
Southern Illinois University	1
Universidade Federal de Vicosa/Brazil	4
University of Guelph/Canada	3
University of Saskatchewan/Canada	1



PhD - 25 MSc - 50
BSc - 9

Dissertation/Thesis Titles

Dissertation/Thesis Titles for SADC/ICRISAT/INTSORMIL Advanced Degree Trainees

COUNTRY	PARTICIPANT NAME & UNIVERSITY	DEG.	THESIS TITLE	MAJOR SUPERVISOR NAME & ADDRESS
Angola	Alfredo, Manuel M University Federal de Vicosa.	MS	The main pathogens found in sorghum seeds in different sowing and harvesting times.	R.Ferreira da Silva Univ. Federal de Vicosa 36570 Vicosa Minas Gerais, Brasil
	Chitengue, Jone University Federal de Vicosa	MS	Breeding sorghum for resistance against <i>Collectoricum graminicola</i>	Clibas Vieira Univ. Federal de Vicosa 36570 Vicosa Minas Gerais, Brasil
	Domingos, Mpanzo University Federal de Vicosa	MS	The influence of cropping system and of harvesting time on the physiological quality of sorghum seeds [<i>Sorghum bicolor</i> (L.) Moench].	Tuneo Sediama Univ. Federal de Vicosa 36570 Vicosa Minas Gerais, Brasil
	Jose, Joao Fernandes University Federal de Vicosa	MS	Heterosis estimation and correlation between hybrids and lines of grain sorghum [<i>Sorghum bicolor</i> (L.) Moench].	A. Cardoso Univ. Federal de Vicosa 36570 Vicosa Minas Gerais, Brasil
Botswana	Lekalake, Rosemary I. Texas A&M University	MS	Factors affecting the cooking and extrusion properties of sorghum for noodle production	Lloyd W. Rooney Dept. Soil & Crop Science Texas A&M Univ. College Station TX 77843
	Lele, Etani O. Kansas State University	MS	Effects of management on crop-weed relationships in grain sorghum	Richard L. Vanderlip Dept. of Agronomy Kansas State University Manhattan, KS 66506
	Makhwaje, Ernest Kansas State University	MS	The economic analysis of the national tillage trials	David Norman Agric. Economics Dept. Kansas State Univ. Manhattan KS 66506
	Malepa, Dollina University of Nebraska	PhD	Establishing base line soil test critical levels for benchmark soils of Botswana (Not completed)	Daniel T. Walters Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915

Botswana cont.	Manthe, Christopher Texas A&M University	PhD	Sorghum resistance to the sugarcane aphid (<i>Homoptera:Aphididae</i>)	George L. Teetes Entomology Dept. Texas A&M Univ. College Station TX 77843
	Molapong, Keoagile F. North Carolina State University	PhD	Evaluation of a continuous lime recommendation based on soil acidity components	Fred Cox Dept. of Soil Science North Carolina State Univ. Raleigh NC 27695
	Moroke, Thebeetsile Southern Illinois University	MS	Pedological evaluation of reclaimed surface mined soil	S.K. Chong Plant & Soil Science Dept. So. Illinois University Carbondale IL 62901
	Sebolai, Boingotlo University of Nebraska	MS	Seeding vigor of three forage grasses	Max D. Clegg Dept. of Agronomy University of Nebraska Lincoln NE 68583-0817
	Mazhani, Louis University of Nebraska	PhD	Evaluation of stability of performance of twenty-five grain sorghum (<i>sorghum bicolor</i> L. Moench.) Genotypes in Botswana.	David J. Andrews Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915
Lesotho	Khalema, Tieiso M Texas Tech University	MS	An estimation of costs and benefits of developing a midge resistant sorghum hybrid	Terry Ervin Agric. Economics Dept Texas Tech University Lubbock TX 79409
	Marake, Makaola University of Nebraska	MS	Increasing nitrogen use efficiency by dryland sorghum under conventional disk and no-till systems	Daniel T. Walters Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915
	Matli, Musi University of Nebraska	PhD	The effects of leader involvement in extension program development	James E. Homer Agric. Education Dept. University of Nebraska Lincoln NE 68583-0709
	Mokhoro, Cyprian T University of Nebraska	MS	Comparison of starch related changes in stored fermented and unfermented sorghum porridge	David S. Jackson Food Science & Tech. University of Nebraska Lincoln NE 68583-0919

Lesotho cont.	Moletsane, Nyakallo Purdue University	MS	Marketing system for food crops in Lesotho	Paul L. Farris Agric. Economics Dept. Purdue University West Lafayette IN 47907
	Qhobela, Molapo Kansas State University	PhD	Characterization of <i>Xanthomonas campestris</i> pathovars affecting millet, sorghum and sugar cane	Larry E. Clafin Plant Pathology Dept Kansas State University Manhattan KS 66506
	Ranthamane, Matla M. Kansas State University	MS	Comparison of two introgression schemes to utilize the wild relatives of sorghum for improved combining ability and heterosis in grain sorghum hybrids	Paula Bramei-Cox Dept. of Agronomy Kansas State University Manhattan KS 66506
	Sefika, Phakiso University of Nebraska	MS	Effect of BMR gene on nutritive value of pearl millet and sorghum harvested as silage, hay, green chop, or residue	Bruce E. Anderson Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915
Malawi	Ching'oma, Godfrey P. Mississippi State University	MS	Oviposition of fall armyworm: Relationship of moth age and flight period with stage of maturity of sorghum	Henry N. Pitre Dept. of Entomology Drawer EM Mississippi State Univ. Mississippi St. MS 39762
	Chintu, Edmund Mississippi State Univ.	MS	Genetic variability for manganese tolerance in sorghum	Lynn M. Gourley Agronomy Dept. Box 5248 Mississippi State Univ. Mississippi St MS 39762
	Chirwa, Rowland University of Nebraska	PhD	Estimation of synthetic variety yields in pearl millet through parental line evaluation, per se and in tester combinations	David J. Andrews Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915
	Kabambe, Vernon Kansas State University	MS	On the effects of environmental factors on mesocotyl elongation of pearl millet and its importance to stand establishment	Richard L. Vanderlip Dept. of Agronomy Kansas State University Manhattan KS 66506
	Luhanga, Jeffrey Mississippi State University	PhD	Evolution of sorghum [<i>Sorghum bicolor</i> (L.) Moench] genotypes for resistance to field deterioration	C.H. Andrews Agronomy & Seed Tech. P.O. Box 5267 Mississippi State Univ. Mississippi St., MS 39762

Malawi cont.	Maliro, Charles E. University of Nebraska	PhD	Nitrogen and stress environments on the physiology and yield of grain sorghum	Max D. Clegg Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915
	Msiska, Felix Mississippi State University	MS	Effect of a plant growth regulator on cotton and sorghum	Harry F. Hodges Dept. of Agronomy P.O. Box 5248 Mississippi State Univ. Mississippi St. MS 39762
	Paliani, Anderson L.P. Texas A&M University	MS	Sorghum resistance to yellow sugarcane aphid (<i>Homoptera:Aphididae</i>)	George L. Teetes Entomology Dept. Texas A&M University College Station TX 77843
	Theu, Matthew P. Texas A&M University	PhD	Host resistance in grain sorghum to sorghum yellow banding virus	Robert W. Toler Plant Science Dept. Texas A&M University College Station TX 77843
	Thindwa, Harriet Texas A&M University	PhD	Effect of temperature/photoperiod on sorghum resistance mechanisms to biotype C and E greenbugs (<i>Homoptera:Aphididae</i>) and biotype differentiation by DNA content	George E. Teetes Entomology Dept. Texas A&M University College Station TX 77843
Mozambique	Brito, Rui Miguel C.L. Colorado State University	PhD	Network modeling of two-phase flow in porous media	Deanna Durnford Agric. & Chemical Eng. Colorado State University Fort Collins, CO 8052?
	Gouveia, Sergio J. Texas A&M University	MS	Effects of chemical desiccation and early harvesting on sorghum [<i>Sorghum bicolor</i> (L.) Moench] seed germination	Fred D. Miller Soil & Crop Science Dept. Texas A&M University College Station TX 77843
	Hugo, Leda Florinda Texas A&M University	MS	Production of bread from blends of sorghum flour and gelatinized cassava starch	Lloyd W. Rooney Soil & Crop Science Dept. Texas A&M University College Station, TX 77843
	Maposse, Inacio C. University of Nebraska	MS	Response of morphologically divergent strains of Sudangrass to row spacing and harvest scheme	Bruce E. Anderson Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915

Mozambique cont.	Mucavele, Firmino G. University of Florida	PhD	Efficiency analysis under risk and uncertainty for grain crops in Mozambique	Thomas Spreen Food & Resource Econ. University of Florida Gainesville FL 32611
	Nunes, Maria Eugenia Texas A&M University	MS	Performances of sorghum [<i>Sorghum bicolor</i> (L.) Moench] hybrids and their parents across locations	Fred D. Miller Soil & Crop Science Dept Texas A&M University College Station TX 77843
	Pereira, Luiz M. University of Nebraska	MS	Agroclimatic factors influencing drought resistance in millet	Albert Weiss Agric. Meteorology University of Nebraska Lincoln NE 68583-0728
Swaziland	Kunene, Innocentia S. Texas A&M University	PhD	<i>Gaertneriomyces</i> species as a potential biological control agent of sorghum downy mildew.	Gary N. Odvody Dept. of Plant Sciences Texas A&M University Corpus Christi TX 78410
	Mabuza, Khanyisile F. University of Guelph	MS	Food acceptability assessment variety trials in Swaziland	Elizabeth Gullet Food Science & Tech. University of Guelph Guelph Ontario N1G 2W1 Canada
	Malaza, Millicent T. Pennsylvania State University	PhD	The displacement of sorghum as a major staple food crop in Swaziland and its implications for national food security	Rex Warland Rural Sociology/Ag Econ. Pennsylvania State Univ. University Park PA 16802
	Matsebula, Sebenzile P. University of Saskatchewan	PhD	Evaluation of biometrical analysis procedures applied in experimental agricultural research programs in the SADC region (Not completed)	R.J. Baker Crop Science Univ. of Saskatchewan Saskatoon, Saskatchewan S7N 0W0 Canada
	Mkhabela, Milton S. Texas A&M University	PhD	Inheritance and yield relationship of pre- and post-flowering drought tolerance in sorghum (Not completed)	Darrell T. Rosenow Texas A&M AgExpStation Route 3, Box 219 Lubbock TX 79401-9757
	Nxumalo, Edgar Sam Houston State University	MS	Inheritance of nitrogen uptake and use efficiency in grain sorghum	Bobby Lane Agronomy Dept. Sam Houston St. Univ. Huntsville AL 77341

Tanzania	Felix, Joel Purdue University	MS	Corn/soybeans cropping systems, management and their effect on weed control	James J. Vorst Agronomy Dept. Purdue University W. Lafayette IN 47907
	Guutazi, Athman Kansas State University	MS	Effect of greenbug (<i>Schizaphis graminum</i> Rondani) biotype E on some commercial sorghum (<i>Sorghum bicolor</i> L.) hybrids	John Reese Entomology Dept. Kansas State University Manhattan KS 66506
	Kaganda, Suleiman R. University of Nebraska	MS	Seedling competitiveness of warm-season grasses	Bruce E. Anderson Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915
	Kiula, Barnabas A. University of Nebraska	MS	The effect of female parent selfing on the productivity of hybrids made by protogyny in pearl millet	David J. Andrews Dept. of Agronomy University of Nebraska Lincoln Ne 68583-0915
	Madulu, Ruth B. Kansas State University	MS	The effect of crop management: grain yield and yield components of sorghum and water use.	Richard L. Vanderlip Agronomy Dept. Kansas State University Manhattan KS 66506
	Mansuetus, Anaclet Texas A&M University	MS	The effect of glume and caryopses characteristics of sorghum [<i>Sorghum bicolor</i> (L.) Moench] on infection by <i>Fusarium moniliforme</i> Sheldon.	Richard A. Frederiksen Plant Pathology Dept. Texas A&M University College Station TX 77843
	Mansuetus, Anaclet Texas A&M University	PhD	Mating populations and vegetative compatibility groups within <i>Gibberella fujikurui</i> (<i>Fusarium</i> section <i>Liseola</i>) on sorghum in Tanzania	Richard A. Frederiksen Plant Pathology Dept Texas A&M University College Station TX 77843
	Matowo, Peter R. Kansas State University	PhD	Nitrogen management in grain sorghum production	Gary Pierzwnski Agronomy Dept Kansas State University Manhattan KS 66506
Mbuya, Odemari S. University of Florida	PhD	Nitrogen and atrazine movement in soil and nitrogen distribution in sorghum as influenced by soil water content	Kenneth J. Boote Agronomy Dept. University of Florida Gainesville FL 32611	

Tanzania cont.	Mgema, William G. University of Nebraska	MS	Screening sorghum for manganese toxicity in nutrient solutions (Dr. Clark was formerly at the University of Nebraska)	Ralph D. Clark USDA-ARS PO Box 867-Airport Rd. Beckley WV 25802-0867
	Mrema, Greyson Chris Texas A&M University	MS	Effects of steeping and germination time on malt properties of two sorghum cultivars	Lloyd W. Rooney Soil & Crop Science Dept Texas A&M University College Station TX 77843
	Mtwaenzi, Hamis Mississippi State University	MS	The effectiveness of seed storage safeners on grain sorghum	George E. Coats Plant Pathology Dept. Mississippi State Univ. Mississippi St MS 39762
	Saadon, Hamis Mississippi State University	PhD	Inheritance of manganese tolerance in sorghum	Lynn M. Gourley Agronomy Dept Box 5248 Mississippi State Univ. Mississippi St MS 39762
	Tarimo, Thadeo Purdue University	PhD	Development of a bioassay of tannin-free, bird resistant sorghums for bird repellency	Larry G. Butler Biochemistry Dept Purdue University W.Lafayette IN 47907
Zambia	Chisi, Medson Texas A&M University	MS	Heterosis and combining ability in A1 and A2 cytoplasm lines for sorghum [<i>Sorghum bicolor</i> (L.) Moench].	Frederick Miller Soil & Crop Sciences Texas A&M University College Station TX 77843
	Chisi, Medson Kansas State University	PhD	Evaluation of two families (Full-Sib-Si) for drought tolerance, agronomic traits from a sorghum grain population, and the evaluation hybrids developed from KP9B derived lines with four testers	Paula Bramel-Cox Agronomy Dept Kansas State University Manhattan KS 66506
	Chungu, Chibwe University of Nebraska	MS	Tester choice in evaluating new parental lines in grain [<i>Sorghum bicolor</i> (L.), Moench]	David J. Andrews Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915
	Hikeezi, Doreen Kansas State University	MS	Cookie making using dehulled high tannin sorghum supplemented with peanut and/or sunflower flours	Charles Walker Grain Science & Industry Kansas State University Manhattan KS 66506

Zambia cont.	Kasalu, Helen University of Nebraska	MS	Evaluation of germination and seedling emergence characteristics for grain sorghum genotypes	Steve C. Mason Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915
	Masi, Cassim E.A. University of Nebraska	PhD	Nitrogen and water stress pertaining to root development of sorghum	Jerry W. Maranville Dept. of Agronomy University of Nebraska Lincoln NE 68583-0817
	Muuka, Ferdinand University of Nebraska	MS	Geneotypic differences in lodging and mechanical strengths in stalks and peduncles of pearl millet [<i>Pennisetum glaucum</i> (L.) R.Br.]	David J. Andrews Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915
	Mwale, Moses University of Nebraska	MS	Nitrogen transformations in soil during the decomposition of labeled corn and soybean residue	Daniel T. Walters Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915
	Ngulube-Msikita, Rachel University of Nebraska	MS	Grain sorghum [<i>Sorghum bicolor</i> (L.) Moench] seed respiration in relation to length of grainfill	Jerry D. Eastin Dept. of Agronomy University of Nebraska Lincoln NE 68583-0817
	Siame, Anthony B. Purdue University	PhD	Isolation of Strigal from <i>Striga</i> host plants and the role of flavonoids in sorghum leaf disease reaction	Larry G. Butler Biochemistry Dept. Purdue University W.Lafayette IN 47907
	Sikabbubba, Ruth Kansas State University	MS	Effect of cross-linked kafirin and zein proteins on digestibility and protein quality of corn and sorghum grains	Art Davis Food Science & Tech. Kansas State University Manhattan KS 66506
Zimbabwe	Beta, Trust Texas A&M University	MS	The malting properties of different sorghum cultivars.	Lloyd W. Rooney Soil & Crop Science Dept. Texas A&M University College Station TX 77843
	Gono, Lawrence T. Kansas State University	PhD	Differences in sorghum emergence among genotypes in relation to soil water and soil temperature	Richard L. Vanderlip Agronomy Dept. Kansas State University Manhattan KS 66506

Zimbabwe cont.	Mahuku, George S. Texas A&M University	MS	The effect of airgun inoculations on selection for levels of MDMV resistance in breeding populations	Robert Toler Dept of Plant Sciences Texas A&M University College Station TX 77843
	Mahuku, George S. University of Guelph	PhD	The development and use of polymerase chain reaction-based assays to detect and quantify the fungus <i>Leptosphaeria maculans</i> , cause of blackleg of crucifers, in seedlots of oilseed rape	Robert Hall Environmental Biology University of Guelph Guelph, Ontario N1G 2W1 Canada
	Makaudze, Ephias Texas A&M University	MS	Implications of drought in Zimbabwe and effect on agriculture	Stephen Fuller Agric Economics Dept Texas A&M University College Station TX 77843
	Mazhangara, Edward P. Purdue University	MS	The impact of new technologies on small holders in low-rainfall areas of Zimbabwe: A mathematical programming analysis	William Masters Ag Economics Dept Purdue University W. Lafayette IN 47907
	Mushonga, Joseph Purdue University	PhD	Investigations on genetic variability, heterosis, and gene action for diastatic activity and some correlated traits in sorghum [<i>Sorghum bicolor</i> (L.) Moench] grain.	John D.Axtell Agronomy Department Purdue University W. Lafayette IN 47907
	Muza, Figuhr R. Mississippi State Univ	MS	Combining ability and stability of grain yield in pearl millet	Lynn M. Gourley Agronomy Dept. Box 5248 Mississippi State Univ. Mississippi St MS 39762
	Muza, Figuhr R. University of Nebraska	PhD	Mutagenesis and RFLP application in finger millet (<i>Eleusine coracana</i> L. Gaertn.) breeding	Donald Lee/David Andrews Dept. of Agronomy University of Nebraska Lincoln NE 68583-0915
	Nyakatawa, Ermson Z. University of Nebraska	MS	Effect of temperature and soil moisture stress on seedling emergence force of selected grain sorghum [<i>Sorghum bicolor</i> (L.) Moench] genotypes under simulated soil crust strengths	Jerry D. Eastin Dept. of Agronomy University of Nebraska Lincoln NE 68583-0817
	Zvoutete, Peter Kansas State University	MS	Determining the seed borne facet of bacterial stripe and bacterial streak diseases of pearl millet	Larry E. Claffin Plant Pathology Dept. Kansas State University Manhattan KS 66506

Participants

**SADC STUDENT LIST SORTED BY COUNTRY
ACTIVE, COMPLETED & CANCELLED PARTICIPANTS**

February 1995

COUNTRY	NAME	DEGREE	DISCIPLINE	SADC START/END	PROGRAM * COMPLETE UNIVER.	GENDER	STATUS
Angola	ALFREDO, Manuel	MSc	Plant Pathology	8/1990 - 11/1993	Vicosa	Male	Complete
Angola	DOMINGOS, Mpanzo	MSc	Agronomy	9/1990 - 11/1993	Vicosa	Male	Complete
Angola	CHITENGUE, Jone	MSc	Plant Breeding	2/1989 - 12/1992	Vicosa	Male	Complete
Angola	JOSE, Joao	MSc	Plant Breeding	2/1989 - 8/1992	Vicosa	Male	Complete
Botswana	MOLAPONG, Keoagile F.	PhD	Soil Science	1/1991 - 10/1993	8/94 N.Carolina St	Male	Complete
Botswana	EMMANUEL, Willie P.	BSc	Seed Technology	8/1990 - 12/1992	Miss. State	Male	Complete
Botswana	LEKALAKE, Rosemary I.	MSc	Food Science	1/1991 - 5/1993	Texas A&M	Female	Complete
Botswana	LELE, Etani Oliver	MSc	Agronomy	1/1991 - 11/1993	Kansas State	Male	Complete
Botswana	MAKHWAJE, Ernest	MSc	FSR/Economics	1/1991 - 5/1993	Kansas State	Male	Complete
Botswana	MALEPA, Dollina B.	PhD	Soil Science	8/1989 - 5/1993	Nebraska	Female	Withdrew
Botswana	MANTHE, Christopher	PhD	Entomology	1/1990 - 2/1992	Texas A&M	Male	Complete
Botswana	MAZHANI, Louis	PhD	Plant Breeding	8/1987 - 8/1990	Nebraska	Male	Complete
Botswana	MOGOROSI, Michael	BSc	Agronomy	1/1987 - 8/1989	Nebraska	Male	Complete
Botswana	MOROKE, Thebeetsile S.	MSc	Soil Science	10/1990 - 1/1992	So. Illinois	Male	Complete
Botswana	SEBOLAI, Boingtolo	MSc	Biometrics	8/1987 - 8/1989	Nebraska	Female	Complete
Lesotho	MOKHORO, Cyprian T.	MSc	Food Science	8/1990 - 12/1993	Nebraska	Male	Complete
Lesotho	KHALEMA, Tieiso M.	MSc	FSR/Economics	8/1990 - 8/1993	Texas Tech	Male	Complete
Lesotho	MARAKE, Makoala	MSc	Soil Science	1/1987 - 12/1989	Nebraska	Male	Complete
Lesotho	MATLI, Musi	PhD	Agric. Extension	1/1986 - 2/1989	Nebraska	Male	Complete
Lesotho	MOFOLO, Moea	BSc	Agronomy	1/1987 - 8/1991	Nebraska	Male	Complete
Lesotho	MOLETSANE, Nyakallo	MSc	FSR/Economics	1/1987 - 2/1991	Purdue	Female	Complete
Lesotho	MOTHOKHO, Neo	BSc	Agronomy	1/1987 - 5/1990	Nebraska	Male	Complete
Lesotho	QHOBELA, Molapo	PhD	Plant Pathology	10/1985- 3/1990	Kansas State	Male	Complete
Lesotho	RANTHAMANE, Matla M.	MSc	Plant Breeding	1/1991 - 9/1993	Kansas State	Male	Complete
Lesotho	SEFIKA, Phakiso	MSc	Forages	8/1990 - 8/1993	Nebraska	Male	Complete

COUNTRY	NAME	DEGREE	DISCIPLINE	SADC START/END	PROGRAM * COMPLETE	UNIVER.	GENDER	STATUS
Malawi	CHING'OMA, Godfrey P.	MSc	Entomology	1/1991 - 12/1993		Miss. State	Male	Complete
Malawi	CHINTU, Edmund	MSc	Plant Breeding	1/1987 - 5/1989		Miss. State	Male	Complete
Malawi	CHINTU, Edmund	PhD	Plant Breeding	3/1991 - 9/1992		Guelph	Male	Withdrew
Malawi	CHIRWA, Rowland M.	PhD	Plant Breeding	1/1988 - 11/1991		Nebraska	Male	Complete
Malawi	KABAMBE, Vernon	MSc	Agronomy	5/1988 - 5/1990		Kansas State	Male	Complete
Malawi	LUHANGA, Jeffrey	PhD	Seed Technology	1/1988 - 9/1991		Miss. State	Male	Complete
Malawi	MALIRO, Charles E.	PhD	Agronomy	5/1988 - 11/1993		Nebraska	Male	Complete
Malawi	MSISKA, Felix	MSc	Agronomy	5/1988 - 8/1990		Miss. State	Male	Complete
Malawi	PALIANI, Anderson L.	MSc	Entomology	1/1991 - 7/1993		Texas A&M	Male	Complete
Malawi	THEU, Matthew	PhD	Plant Pathology	8/1987 - 4/1991		Texas A&M	Male	Complete
Malawi	THINDWA, Harriet	PhD	Entomology	7/1985 - 1/1991		Texas A&M	Female	Complete
Malawi	KAPEYA, Evasio	PhD	Entomology	8/1987 - 6/1988		Texas A&M	Male	Withdrew
Malawi	BOKOSI, James	PhD	Plant Breeding	11/1992 - 9/1993		Nebraska	Male	Withdrew
Mozambique	BRITO, Rui Miguel	PhD	Agronomy	8/1989 - 8/1993	2/95	Colorado St.	Male	Complete
Mozambique	GOUVEIA, Sergio J.	MSc	Plant Breeding	6/1991 - 12/1993	1/94	Texas A&M	Male	Complete
Mozambique	HUGO, Leda F.	MSc	Food Science	1/1991 - 12/1993	1/94	Texas A&M	Female	Complete
Mozambique	MUCAVELE, Firmino	PhD	FSR/Economics	1/1991 - 12/1993	6/94	Florida	Male	Complete
Mozambique	MAPOSSE, Inacio	MSc	Forages	6/1991 - 10/1993		Nebraska	Male	Complete
Mozambique	NUNES, Maria	MSc	Plant Breeding	7/1988 - 5/1991		Texas A&M	Female	Complete
Mozambique	PEREIRA, Luiz	MSc	Agroclimatology	6/1989 - 2/1992		Nebraska	Male	Complete
Swaziland	MALAZA, Millicent T.	PhD	FSR/Economics	9/1990 - 12/1993	11/94	Penn. State	Female	Complete
Swaziland	MATSEBULA, Sebenzile P.	PhD	Biometrics	8/1991 - 5/1994		Saskatchewan	Female	Withdrew
Swaziland	MKHABELA, Milton S.	PhD	Plant Breeding	8/1990 - 12/1993	5/94	Texas Tech	Male	N/Complete
Swaziland	KUNENE, Innocentia	PhD	Plant Pathology	8/1987 - 9/1991		Texas A&M	Female	Complete
Swaziland	MABUZA, Khanyisile F.	MSc	Food Science	1/1991 - 7/1993		Guelph	Female	Complete
Swaziland	NXUMALO, Edgar	MSc	Agronomy	8/1988 - 10/1990		Sam Hous.St.	Male	Complete

COUNTRY	NAME	DEGREE	DISCIPLINE	SADC START/END	PROGRAM * COMPLETE	UNIVER.	GENDER	STATUS
Tanzania	MANSUETUS, Anaclet S.B.	MSc	Plant Pathology	6/1987 - 12/1989		Texas A&M	Male	Complete
Tanzania	MANSUETUS, Anaclet S.B.	PhD	Plant Pathology	1/1990 - 12/1993		Texas A&M	Male	Complete
Tanzania	TARIMO, Thadeo C.	PhD	Bird Control	8/1990 - 12/1993	2/94	Purdue	Male	Complete
Tanzania	MBUYA, Odemari S.	PhD	Agronomy	1/1991 - 9/1993	5/94	Florida	Male	Complete
Tanzania	FELIX, Joel	BSc	Agronomy	6/1988 - 5/1990		Purdue	Male	Complete
Tanzania	FELIX, Joel	MSc	Agronomy	6/1990 - 8/1992		Purdue	Male	Complete
Tanzania	GUUTAZI, Athman	MSc	Entomology	8/1986 - 7/1989		Kansas St.	Male	Complete
Tanzania	KAGANDA, Suleiman R.	MSc	Forages	1/1991 - 12/1993		Nebraska	Male	Complete
Tanzania	KIULA, Barnabas A.	MSc	Plant Breeding	8/1990 - 6/1993		Nebraska	Male	Complete
Tanzania	MADULU, Ruth B.	MSc	Agronomy	8/1990 - 8/1993		Kansas St.	Female	Complete
Tanzania	MATOWO, Peter R.	PhD	Agronomy	1/1990 - 8/1993		Kansas St.	Male	Complete
Tanzania	MGEMA, William G.	MSc	Agronomy	1/1989 - 3/1992		Nebraska	Male	Complete
Tanzania	MNDOLWA, Samuel	BSc	Agronomy	8/1988 - 5/1992		Kansas St.	Male	Complete
Tanzania	MREMA, Greyson	MSc	Food Science	5/1990 - 5/1993		Texas A&M	Male	Complete
Tanzania	MTWAENZI, Hamis	MSc	Weed Science	1/1991 - 7/1993		Miss. State	Male	Complete
Tanzania	SAADAN, Hamis	PhD	Plant Breeding	5/1986 - 4/1991		Miss. State	Male	Complete
Tanzania	CHAMBO, Habel S.	MSc	Plant Breeding	1/1987 - 5/1987		Kansas St.	Male	Withdrew
Zambia	HIKEEZI, Doreen M.	BSc	Agronomy	5/1987 - 8/1991		Kansas St.	Female	Complete
Zambia	HIKEEZI, Doreen M.	MSc	Food Science	8/1991 - 12/1993	7/94	Kansas St.	Female	Complete
Zambia	MASI, Cassim E.A.	PhD	Agronomy	8/1991 - 9/1993	12/95	Nebraska	Male	Active
Zambia	NGULUBE-MSIKITA, Rachel	BSc	Agronomy	8/1990 - 12/1992		Nebraska	Female	Complete
Zambia	NGULUBE-MSIKITA, Rachel	MSc	Agronomy	1/1993 - 9/1993	5/95	Nebraska	Female	Active
Zambia	SIAME, Anthony Bupe	PhD	Food Science	8/1989 - 12/1993		Purdue	Male	Complete
Zambia	CHISI, Medson	MSc	Plant Breeding	8/1985 - 6/1988		Texas A&M	Male	Complete
Zambia	CHISI, Medson	PhD	Plant Breeding	8/1990 - 11/1993		Kansas St.	Male	Complete
Zambia	CHUNGU, Chibwe	BSc	Agronomy	8/1987 - 12/1989		Nebraska	Female	Complete
Zambia	CHUNGU, Chibwe	MSc	Plant Breeding	1/1990 - 5/1992		Nebraska	Female	Complete
Zambia	KASALU, Helen	MSc	Agronomy	5/1988 - 1/1991		Nebraska	Female	Complete
Zambia	MUUKA, Ferdinand	MSc	Plant Breeding	1/1987 - 8/1989		Nebraska	Male	Complete
Zambia	MWALE, Moses	MSc	Soil Science	8/1990 - 11/1993		Nebraska	Male	Complete
Zambia	SIKABBUBBA, Ruth	MSc	Food Science	8/1986 - 6/1989		Kansas St.	Female	Complete
Zambia	KAULA, Godwin M.	PhD	Plant Pathology	8/1987 - 9/1988		Texas A&M	Male	Withdrew
Zambia	MUSONDA, Ephriam	MSc	Entomology	8/1990 - 12/1990		Texas A&M	Male	Withdrew

COUNTRY	NAME	DEGREE	DISCIPLINE	SADC START/END	PROGRAM * COMPLETE	UNIVER.	GENDER	STATUS
Zimbabwe	BETA, Trust	MSc	Food Science	6/1991 - 12/1993		Texas A&M	Female	Complete
Zimbabwe	GONO, Lawrence T.	PhD	Agronomy	8/1990 - 9/1993		Kansas St.	Male	Complete
Zimbabwe	MAHUKU, George S.	MSc	Plant Pathology	1/1989 - 5/1991		Texas A&M	Male	Complete
Zimbabwe	MAHUKU, George S.	PhD	Plant Pathology	1/1992 - 3/1994		Guelph	Male	Complete
Zimbabwe	MAKAUDZE, Ephias	MSc	FSR/Economics	1/1991 - 10/1993		Texas A&M	Male	Complete
Zimbabwe	MAZHANGARA, Edward P.	MSc	FSR/Economics	6/1991 - 8/1993		Purdue	Male	Complete
Zimbabwe	MUSHONGA, Joseph	PhD	Plant Breeding	8/1985 - 8/1986		Purdue	Male	Complete
Zimbabwe	MUZA, Figuhr R.	MSc	Plant Breeding	8/1987 - 12/1989		Miss. State	Male	Complete
Zimbabwe	MUZA, Figuhr R.	PhD	Plant Breeding	8/1990 - 9/1993		Nebraska	Male	Complete
Zimbabwe	NYAKATAWA, Ermson Z.	MSc	Agronomy	1/1991 - 9/1993		Nebraska	Male	Complete
Zimbabwe	ZVOUTETE, Petros	MSc	Plant Pathology	1/1989 - 1/1991		Kansas St.	Male	Complete
Zimbabwe	MTISI, Esther	PhD	Plant Pathology	8/1990 - 3/1991		Texas A&M	Female	Withdrew

* Outside funding to complete program

SADC TRAINING PROGRAM NOT INITIATED

Angola	BARATA, Manuel	MSc	Seed Technology	Male
Angola	CARVALHO, Estavao	MSc	FSR/Economics	Male
Angola	CONTREIRAS, Sara	MSc	Food Science	Female
Angola	EDUARDO, Francisco	MSc	FSR/Economics	Male
Angola	NOGUEIRA, Maria Filomina	MSc	Entomology	Female
Angola	PRIMO, Henrique	MSc	Agronomy	Male
Angola	TATI, Jose	MSc	FSR/Economics	Male
Lesotho	LEHLOBA, Mamphokela	MSc	Food Science	Female
Lesotho	NAMANE, Trower	PhD	Plant Breeding	Male
Malawi	MHANGO, Jarrett	MSc	Food Science	Female
Mozambique	BAY, Admir	PhD	Seed Technology	Male
Mozambique	MONDJANA, Ana Maria	MSc	Plant Pathology	Female
Mozambique	MORAES, Manuel	MSc	FSR/Economics	Male
Mozambique	SOUZA, Daniel	MSc	Agronomy	Male
Mozambique	UAIENE, Rafael Nemba	MSc	Plant Breeding	Male
Namibia	AUINO, Erastus	MSc	Entomology	Male
Namibia	MILUNGA, Raymond S.	BSc/MSc	Agric. Extension	Male
Namibia	MUTELO, Felix M.	MSc	Agric. Extension	Male
Namibia	MWEMBA, Samalaza D.	BSc	FSR/Economics	Male
Namibia	SIKWANA, Charles K.	BSc	Soil Science	Male
Namibia	SITWALA, Leonard W.	BSc/MSc	Agric. Extension	Male
Tanzania	KULLAYA, Ignace K.	PhD	Soil Science	Male
Tanzania	MAFURU, January M.	MSc	FSR/Economics	Male
Tanzania	MONYO, Helen M.	MSc	Food Science	Female
Zimbabwe	DHLIWAYO, Herbert	BSc	Agronomy	Male
Zimbabwe	KAZIBONI, James	MSc	FSR/Economics	Male
Zimbabwe	KUPFUMA, Bernard	MSc	FSR/Economics	Male
Zimbabwe	MATSIGA, Morgan	PhD	Entomology	Male
Zimbabwe	NYATHI, Petros	PhD	Forages	Male