

Better Grain-cleaning Equipment for Sorghum and Pearl Millet

In smallholder farming areas of Southern Africa, sorghum and pearl millet are commonly threshed by pounding the grain heads with sticks and sweeping up the grain from the ground. One result is that the grain becomes contaminated with sand, small stones, and other foreign matter. If it is to be used for food, the grain must then be cleaned prior to processing. The technologies commonly used for such grain cleaning (generally including the washing and drying of grain) are time-consuming and expensive. Yet without such cleaning, sorghum or pearl millet meal, in particular, remains likely to be contaminated with foreign matter. This severely limits development of the market for meal.

SMIP commissioned an engineering consultant to help identify a more practical solution. Following a review of the problem with millers in Zimbabwe and Botswana, the consultant identified the need for equipment that combines at least two cleaning processes — sieving and aspiration.

After extensive international enquiries, the consultant identified two optional grain cleaning devices. The multinational grain machinery supplier, Buhler, offers a combined sieving, sorting, destoning, and aspiration system, suited to larger grain processing plants. However, this equipment sells for at least US\$ 50,000 ex-works in Switzerland. Alternatively, small- and medium-scale millers can purchase a vibratory cleaner and aspiration system from Facet Engineering in South Africa. This sells for approximately US\$ 6500 ex-works.

The cleaner from Facet was designed for the small-scale wheat milling industry in South Africa, but can be used for virtually any type of grain by adjusting sieve sizes, angles, and vibratory speed. The cleaner was successfully tested at Induna Foods in Bulawayo, Zimbabwe, on sorghum, pearl millet, and the smaller-grained finger millet. Both large and small contaminants were quickly and efficiently extracted. This equipment is capable of cleaning up to 5 t per hour of wheat, and a similar output is viewed possible for sorghum and pearl millet.

A copy of the consultant's report, and further information about this grain cleaner, can be obtained from SMIP. In addition, a marketing pamphlet can be obtained from SMIP, or from the manufacturer, Facet Engineering, PO Box 971, Honeydew, 2040, South Africa.

Sorghum and Pearl Millet Improvement Research in the SADC Region — Future Needs and Strategies

The Sorghum and Millet Improvement Program (SMIP) has been working with national programs and other partners in the SADC region for the past 17 years to develop and disseminate sorghum and pearl millet technologies. A wealth of technologies and information have been generated, research infrastructure developed, and a number of national program scientists trained. SMIP is now in its fourth and final phase, which ends in 2003. The thrust in Phase IV's agenda is to build on past successes, with an emphasis on promoting complementary investments in seed delivery, crop management, grain marketing, and commercialization to stimulate demand for sorghum and pearl millet, in collaboration with a broad range of partners.

With Phase IV drawing to an end, it became imperative to make preparations for sustaining sorghum and pearl millet R&D beyond SMIP. To this end, ICRISAT and SMIP supported a workshop that sought to establish how national programs and other stakeholders in the region will continue to have access to new sorghum and pearl millet technology in the next 10-15 years. The workshop "SADC regional needs and strategies for sorghum and millets crop improvement" was held during 16-18 Oct 2000 at Matopos Research Station, Zimbabwe. The main objective was to verify specific regional needs for sorghum and millet crop improvement expressed in previous workshops and to develop strategies for future activities. The workshop was attended by various stakeholder groups including national program breeders from a number of SADC countries, representatives of NGOs, private seed companies, INTSORMIL, the SADC Food Security Technical Advisory Unit, and donors (USAID, GTZ, FAO). ICRISAT was represented by the Director of the Genetic Resources and Enhancement Program.

The workshop concluded with proposals of action plans for a regionalized crop improvement program (variety/hybrid development, testing, and release) and a proposal for a sustainable resource base. The guiding principles for the proposed action plans are as follows:

- Sorghum and pearl millet research should contribute to household food security and poverty alleviation.
- Commercialization of the production and utilization of sorghum and pearl millet should aim to achieve income growth.

- The future of the sorghum and pearl millet sector should be guided by constraints in the complete food cycle.

Participants also agreed that issues raised and ideas generated at the workshop should be put together into a concept note for presentation to the SACCAR Technical Committee for Agricultural Research. The paper would be used for sourcing funds from donors and seeking commitment and support from directors of research in SADC national programs.

Linking Promotion of Improved Sorghum and Pearl Millet Varieties with Community Based Seed Multiplication: the Rural Livelihoods Programme

J Mackinon¹, E S Monyo², and N Dube³

(1. Zimbabwe Programme Officer, Oxfam Canada, PO Box 1280, Bulawayo, Zimbabwe; 2. Senior Scientist (Breeding), ICRISAT-Bulawayo, PO Box 776, Bulawayo, Zimbabwe; 3. Programme Officer, ORAP, PO Box 877. Bulawayo, Zimbabwe)

Abstract

Five NGOs (Oxfam Canada, Management Outreach Training Services for Rural and Urban Development [MOTSRUD], Dabane Trust, Zimbabwe Project Trust [ZPT], and Organization of Rural Associations for Progress [ORAP]) are collaborating on a pilot program on rural livelihoods in Zimbabwe. The program aims to improve nutrition levels and reduce vulnerability to drought in 15 target rural communities in drought-prone regions. SMIP was requested to participate because of its expertise on sorghum and pearl millet — crops that have a comparative advantage in drought-prone areas. SMIP's role is to provide improved varieties and training on small-scale seed production techniques to farmers, project managers, and extension workers involved in the program.

To date, the program has disseminated information to about 30 000 farmers (including 600 women) on the benefits of using improved varieties and sustainable farming practices. A central seed bank and 15 community seed banks (in each target community) have been established. The focus of the program is therefore changing. More emphasis should be directed towards ensuring that planting at community level is done in a

timely manner, improving methods of grain processing and storage, and on developing markets for the anticipated excess grain.

Introduction

The program on rural livelihoods was initiated in five drought-prone areas in Zimbabwe — Mudzi, Chiredzi (Save valley), Matobo, Insiza, and Binga districts. In these areas, sorghum and pearl millet have a comparative advantage over maize because they require much less water. In the past 19 years, rainfall patterns in these areas were: four major droughts, when little or no grain was harvested; 4 years of good rains and good harvests of sorghum, pearl millet, and maize; and 11 years of mediocre rains in which maize yields were minimal or non-existent, but sorghum and pearl millet yields were adequate to meet household food security needs as well as provide surplus grain for storage or sale. In such an environment, farmers who plant maize only will go hungry. Those who plant enough sorghum and pearl millet will be food secure at minimum, and in many cases can produce surpluses for sale.

One of the major constraints to increased sorghum and pearl millet production in these areas, as well as throughout the country, is unavailability of seed. In contrast, maize seed is readily available in unlimited quantities. To improve food security in the target communities, the livelihoods program's major strategy is therefore to make sorghum and pearl millet seed available at the local level. ICRISAT was asked to train 'master' farmers to multiply seed and provide them with good quality seed to multiply.

Objectives

The livelihoods program aims primarily to benefit poor rural women farmers. Its long-term goal is to increase nutrition levels and reduce vulnerability to drought in the target communities. This goal can be achieved by increasing sorghum and pearl millet production, leading to a reduction in the need for food aid. In addition to promoting the production of small grains, the program has other components including health promotion (malaria prevention), fortification of grains, promotion of family gardens, and capacity building projects. This report focuses on the small grains production activities in which SMIP is involved. Impact indicators of this program component include an increase in sorghum and pearl millet area, and in the proportion of sorghum and pearl millet grain in the total harvest, from 10% to 30%.