

INTRODUCTORY REMARKS

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Small Millets With Big Potential

Small millets are generally grown in traditional agricultural systems, with low inputs and low productivity. There is a trend to replace millets with more productive crops such as wheat maize or rice in more intensive systems. For example, in Sri Lanka, the finger millet area which was associated with slash and burn agriculture, has decreased as traditional agricultural methods are replaced by more settled systems. Similarly, in Bangladesh the increased area now devoted to wheat and rice has resulted in a decrease in millet area. There are several other countries where an increase in the major cereals has resulted in a decrease in the small millet acreage. We must recognize that there are situations in which major cereals do have an advantage and should be encouraged. Nevertheless, there are many unique traits possessed by the different millet species, which should make millets an important component of improved agricultural systems. I will try and give a few examples of some of these unique traits possessed by millets.

- * Millets are generally fast maturing, which should enable them to fit into more intensive cropping systems. A fast maturing millet could be used as a catch or relay crop in association with other, slower maturing crops.
- * The name millet comes from the word mil or thousand, referring to the large number of grains that can be grown from a single seed. Rapid multiplication of seed is generally a relatively simple matter and seed costs are low. The small seeds of millet generally store well for long periods, ensuring a continued food supply during dry season or when there is a crop failure.
- * The small millet seeds often require less cooking or preparation time. this can be an increasingly important factor when women become involved in more productive farming systems and have less time to devote to food preparation.
- * There are a large number of ways of processing millets in traditional and novel preparations. This can be a factor in increasing the market demand for millets.

- * There are many difficult or marginal farming situations in which specific millets species perform well. Teff, for example is tolerant of water-logged and acid soils. Proso millet can tolerate both drought and saline soil conditions. foxtail millet possesses adaptation to low fertility soils. Because many millets are fast maturing, they can produce a crop quickly and escape the onset of stress conditions such as drought.
- * Many varieties of millets have excellent nutritional properties, containing high levels of essential minerals such as Iron and Calcium. Finger millet is especially known for its characteristic of providing energy for a long time after it is consumed. This is an important trait for people who have jobs that require hard manual work.
- * Millets are not necessarily low yielding crops. Grain yields of finger millet in field conditions in India and Uganda frequently exceed six tons per hectare, and foxtail millet can produce similar yields in China. The lower yields of small millets compared with yields of the major cereals may be due to selection by farmers, over thousands of years, for tolerance to difficult conditions rather than for high grain yield per se.
- * Millets are generally highly valued for their fodder. As indicated in the 1986 Workshop, a new Indian variety of foxtail millet, called SIA 326, is proving to be extremely popular with the farmers in Andhra Pradesh. In addition to its high grain yield, this variety has straw which is highly palatable as livestock feed. The economic value of foxtail millet straw to these farmers, is almost equal to the value of the grain. Recent work at the Dryland Agricultural Centre in Bangalore has found that little millet and barnyard millet produced more forage yield per day under dry conditions compared to any other forage crops tested.
- * We are painfully aware that agriculture is still vulnerable to crop failure, often due to flooding or drought, or due to mismanagement of soil and water resources. Although millets cannot prevent these catastrophes, millets are known as famine crops, that can ensure a quick food crop when other crops have failed. In Bangladesh, for example, the millet area this year is expected to substantially increase, following the worst flooding in perhaps 100 years.
- * In mountain, or hill areas of Nepal the millet area is increasing, from 123000 ha in 1983 to 151000 ha in 1985. Recent estimates place the area planted at 235,000 ha. Land races of finger millet in Nepal are adapted to the extreme variation and harsh conditions in mountain regions.

The above examples indicate that millets have an important role to play as a component of more sustainable and productive agricultural technology.

First International Workshop on Small Millets

The Indian Council of Agricultural Research, the University of Agricultural Sciences, at Bangalore, and IDRC jointly hosted the First International Workshop on Small Millets in Bangalore, September 29 to October 3, 1986. Out of approximately 14 species of millet, there were seven species chosen for consideration at the workshop.

* Finger millet or ragi	<u>Eleusine coracana</u>
* Foxtail millet	<u>Setaria italica</u>
* Proso millet	<u>Panicum miliaceum</u>
* Teff	<u>Eragrostis tef</u>
* Kodo millet	<u>Paspalum scrobiculatum</u>
* Barnyard millet	<u>Echinochloa spp</u>
* Little millet	<u>Panicum sumatrense</u>
* Fonio	<u>Digitaria exilis</u>

Bullrush millet (Pennisetum americanum) is being well supported by ICRISAT, while the other small millets, although important locally, are limited in area and were not considered at the workshop.

The purpose of the workshop was to bring together scientists working on these millets, from countries where these crops are important; to assess the importance, production, and the place of these crops in improved agricultural systems; to discuss the status of research on these crops and explore ways to collaborate in strengthening millet research.

Over 50 scientists from India, Bangladesh, Nepal, Sri Lanka, China, Russia, Ethiopia, Kenya, Zimbabwe, the ICRISAT SADCC Program, Tanzania, Uganda and IDRC attended. Sessions on production trends, genetic resources, breeding, cropping systems and production technology, physiology, food and forage uses were held. There was discussion following each session, and a great deal of information was exchanged, both formally and informally, and some direct arrangements made for exchange of seed material.

A set of recommendations arising from the workshop were developed and approved by the participants. These recommendations are found in Appendix II of this report.

Small Millets Steering Committee

The Steering Committee meeting, in which we are now participating, is a response to general recommendation 4. The objectives of this Steering Committee are generally to recommend how a small millet network is to be developed. The specific objectives are to :

- 1) Review the progress to date in exchanging small millets genetic resources, and plan specific action for future exchange.
- 2) Review the information sources available on small millets and work out how information on small millet might be effectively transferred.
- 3) Develop priorities for research and suggest mechanisms for effective collaborative research on small millets.
- 4) Consider training needs and opportunities.

Of the five nominated steering committee members, we are happy to have four with us today. Mr. Fighur Muza, who was to represent Eastern and Southern Africa, is away on study leave. We are glad that Mr. Samuel Odelle was able to participate in his place. I suggest he could be considered as an acting Steering Committee member.

We are very fortunate to have three other participants at this meeting. Mr. K.E. Prasada Rao has great experience with the small millets and is able to discuss ICRISAT's involvement in this area. We also welcome the participation of Dr. Melaku Worede, Director, Plant Genetic Resources Centre, and Dr. Yilma Kebede, leader of the Ethiopian Sorghum Improvement Program.