
Sorghum Variety Pirira 1 (ICSV 1)



- **Photoperiod-insensitive**
- **Semi-dwarf (1.4-1.7 m)**
- **Matures in 100-115 days**
- **White, corneous, hard grain**
- **Resistant to downy mildew and sooty stripe**
- **Recommended for the humid lower Shire Valley of Malawi**



ICRISAT

Plant Material Description no. 60

International Crops Research Institute for the Semi-Arid Tropics
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Purpose of description

Pirira 1 is a high-yielding, medium-duration, drought-resistant sorghum variety recommended for general cultivation in Malawi, and specifically for the hot, humid, lower Shire river basin. It was released by the National Cultivar Release Committee of Malawi on the basis of its hard grains, to replace the soft-grained commercial variety, PN 3.

Origin and development

Pirira 1 was derived from a line developed at ICRISAT Asia Center (IAC), by pedigree selection from a simple cross between SC 108-3 and CS 3541. The line was supplied with pedigree (SC 108-3 x CS 3541)¹⁹⁻¹, as part of ICRISAT's International Sorghum Variety Adaptation Trial. It was tested as an F₆ bulk from 1979 at IAC locations and in multilocal yield trials across the semi-arid tropics (SAT). The collaborative trials with the Malawi national agricultural research system were conducted at Kasinthula and Ngabu Research Stations, Malawi and the Southern African Development Community (SADC)/ICRISAT Sorghum and Millet Improvement Project (SMIP) Bulawayo, Zimbabwe from 1984/85 to 1992/93.

Synonyms

SPV 351, ICSV 1, Pirira 1.

Performance

Pirira 1 had the highest grain yield among five other ICRISAT cultivars tested across six environments in 5 years (between 1984/85 and 1992/93), in Malawi. On average, Pirira 1 yielded 2.37 t ha⁻¹ compared with 1.42 t ha⁻¹ for the commercial variety PN 3 and 2.29 t ha⁻¹ for the commercial hybrid DC 75, used as controls (Table 1). In farmers' fields, Pirira 1 was evaluated against three cultivars including two improved varieties (Seredo, Kuyuma), and one farmers' local variety (Thengalamanga). Across eight sites, Pirira 1 yielded 2.60 t ha⁻¹ compared with 1.99 t ha⁻¹ for the local Thengalamanga. It also outyielded the two other improved controls (Table 2).

Plant characteristics

Pirira 1 is a medium-duration (110-115 days), photoperiod-insensitive variety with a tan plant and medium-sized leaves. It grows to a height of 1.4-1.7 m and has elliptic,

medium-sized, semicompact, well-exserted panicles. It is resistant to downy mildew (*Sclerospora sorghi*) and sooty stripe *Ramulispora sorghi*, but is susceptible to shoot fly (*Atherigona soccata*) and stem borer (*Chilo partellus*) attacks if sown late.

Seed characteristics

Pirira 1 has creamy-white medium-sized grains (100-seed mass 2.6 g) with white, pearly endosperm and thin pericarps. The grains have no testa (seedcoat). They are hard (3.7 on a 1-5 scale) with very good milling yield (83%) and water absorption (12.3%). The flour is white (Agtron reading 73.2 dry and 48.4 wet), is acceptable as food, and has better storage qualities than PN 3 whose grain hardness is only 2.5.

Table 1. Mean grain yield (t ha⁻¹) of Pirira 1 and five other sorghum varieties in on-station national advanced trials, Chitedze Research Station, Malawi, 1984/85-1992/93.

Cultivar	1984/85	1985/86	1988/89	1990/91	1992/93	Mean
Pirira 1	2.68	3.43	1.23	1.84	2.68	2.37
SPV 346	2.86	2.50	1.46	0.52	-	1.84
SPV 472	2.47	1.99	0.71	-	-	1.72
SPV 386	2.12	1.75	1.21	-	-	1.69
SPV 815	1.80	2.78	0.43	-	-	1.67
SPV 245	2.04	1.96	0.50	-	-	1.50
Controls						
PN 3 (open pollinated)	0.99	2.36	0.90	-	-	1.42
DC 75 (hybrid)	-	-	-	0.97	2.29	

Table 2. Mean grain yield (t ha⁻¹) of Pirira 1 and two improved sorghum varieties in on-farm verification trials at eight locations in Malawi, 1992/93.

Cultivar	F ₁	F ₂	F ₃	F ₄	F ₅	F ₆	F ₇	F ₈	Mean
Pirira 1	0.40	1.40	1.79	3.80	5.60	0.76	4.10	2.58	2.60
Kuyuma	0.35	1.15	0.73	-	-	0.55	-	1.31	0.82
Seredo	-	-	-	-	-	-	-	0.18	2.01
Control									
Thengalamanga (local variety)	-	0.90	-	-	3.29	-	-	1.80	1.99



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Plant Material Descriptions
from the
International Crops Research Institute for the Semi-Arid Tropics

Brief descriptions of crop genotypes identified or developed by ICRISAT, including:

- germplasm accessions with important agronomic or resistance attributes;
- breeding materials, both segregating and stabilized, with unique character combinations;
- cultivars that have been released for cultivation.

These descriptions announce the availability of plant material, primarily for the benefit of the Institute's cooperators. Their purpose is to facilitate the identification of cultivars and breeding lines and to promote their wide utilization. Requests for seed should be addressed to the Director General, ICRISAT, or to appropriate seed suppliers. Materials for research are sent by ICRISAT to cooperators and other users free of charge.