

Performance of some Sorghum Hybrids in Coimbatore Tract.*

by

A. SHANMUGASUNDARAM¹, K. VENKATARAMAN² and
V. MYLSWAMY³.

Synopsis: Trials conducted on Sorghum hybrids in Coimbatore tract have given a clear indication of their potentialities for increasing the productivity. The hybrid M. S. x IS. 3687 registered an increased grain yield of 38.5% over strain Co. 18 and hybrid M. S. x IS. 3555 showed an increase of 14.8%.

Introduction: Exploitation of hybrid vigour for increasing the yield of *sorghum* is comparatively a recent endeavour. Considerable success has already been achieved in the production of hybrid *sorghums*, in the United States of America. *Sorghum*, being a major crop of this country, the Indian Council of Agricultural Research, made a recommendation in 1960 that the wide range of germ-plasm in *sorghum* should be used to develop superior sorghum hybrids, by the utilisation of the American male-sterile type, Combine Kafir-60, as the common female parent. In consequence, the project for the development of *sorghum* hybrids was immediately undertaken at the Regional Centres of the Indian Council of Agricultural Research with the direct participation of the specialists of the Rockefeller Foundation. Several hybrids developed under this programme were advanced for yield trials in many centres located in different parts of the country during 1962. These preliminary trials were eminently useful in the identification of the few potential hybrids which could be tested in large-scale trials in selected tracts. As irrigated *sorghum* is raised both extensively and intensively during summer in Coimbatore tract, it was appropriately chosen as one of the regions for the large-scale testing of promising sorghum hybrids. In the summer season of 1963, scattered-block trials were organised on cultivators' holdings in Coimbatore and Madurai districts, under irrigation, with two selected hybrids M. S. x IS. 3555 and M. S. x IS. 3687. The conduct of these trials was planned and projected by Dr. L. R. House of the Rockefeller Foundation, Dr. V. Santhanam, Head of the PIRRCOM Centre, Coimbatore and the Madras State department of Agriculture, represented by the Millet Specialist and other departmental staff. Results of these scattered-block trials are presented and discussed in this note.

Materials and Methods: The two *sorghum* hybrids M. S. x IS. 3555 and M. S. x IS. 3687 were tried at five centres in Coimbatore district and one in Madurai, along with strain Co. 18, which is the most popular irrigated *sorghum* strain of the tract, as the local check. Each variant was raised in a plot of three cents, the entire trial being bordered on all the four sides with a protective strip of bulk cholam, three feet deep. The manurial schedule adopted

1. Millet Specialist, Coimbatore.

2, 3. Assistants in Millet, Coimbatore.

* Received on 28-3-1964.

for the trial at each centre consisted of five tons of farmyard manure, 60 lb. N. (applied as nitrogenous fertiliser available locally) and 40 lb. P_2O_5 (applied as super phosphate). The entire schedule was completed in a single basal application before sowing. An uniform seed rate of 15 lb. per acre was adopted for all the three variants. Sowings at all the six centres was completed between 9-3-1963 and 15-3-1963, which is the normal sowing season for irrigated *cholam*. Plant Protection measures were taken at the respective centres, as were necessary or possible. The harvests were taken up in time and the yield data recorded.

Results: The yields of grain and straw of the variants at the six centres are presented in the table.

TABLE.

Centre (Unit of Comparison)	Local Check Co. 18		Hybrid MS. x IS. 3555		Hybrid MS. x IS. 3687	
	Grain	Straw	Grain	Straw	Grain	Straw
1. <i>Thombilipalayam</i> :						
Acre yield in lb. ...	4127	24350	4620	25370	4987	23387
Acre yield as percentage of standard ...	100.0	100.0	110.0	102.0	121.0	96.0
2. <i>Vedapatti</i> :						
Acre yield in lb. ...	3042	19767	3337	15180	4380	18216
Acre yield as percentage of standard ...	100.0	100.0	110.0	80.0	144.0	95.0
3. <i>Singanallur</i> :						
Acre yield in lb. ...	1530	19028	1696	19292	1596	18561
Acre yield as percentage of standard ...	100.0	100.0	111.0	101.0	104.2	98.0
4. <i>Vellakovil</i> :						
Acre yield in lb. ...	1067	19567	1448	21100	1833	15733
Acre yield as percentage of standard ...	100.0	100.0	135.7	108.0	172.0	80.0
5. <i>Udumalpet</i> :						
Acre yield in lb. ...	1900	10767	1067	13367	1417	13833
Acre yield as percentage of standard ...	100.0	100.0	56.2	124.2	74.6	128.5
6. <i>Dindugul</i> :						
Acre yield in lb. ...	1167	23000	2567	28666	3567	28000
Acre yield as percentage of standard ...	100.0	100.0	220.0	124.6	305.7	121.7
Average yield per acre	2139	19297	2456	20496	2963	19622
Average yield as percentage of standard ...	100.0	100.0	114.8	106.2	138.5	101.7

From the data presented, it would be apparent that the hybrids have manifested a better yield potential than the local improved strain, at five of the six centres of trial. The variation in the yields of the same variants at different centres, while being indicative of the differential environmental effect, also testifies to the inherent superiority of the hybrids, since expression of their superiority is appreciably uniform. Considering the overall averages, hybrid MS. x IS. 3687 registered an increased grain yield of 38.5 per cent. over strain Co. 18 while hybrid MS. x IS. 3555 showed an increase of 14.8 per cent.

Apart from the agronomic superiority of the hybrids, the opinion of the farmers, in whose holdings the trials were conducted, was also ascertained so as to substantiate a practical basis for the utilisation of the hybrids on a large scale. Shrewd as our farmers are, to recognise a good thing when they see one, they were unequivocal in their appreciation of the hybrid *sorghums*, the grain of which was also held to be equal, in monetary value, to that of the local strain. This is particularly significant since a highly reputed strain (Co. 18) was used as the standard in these trials.

Conclusion: It should justifiably be contended that the hybrid *sorghums* have given a clear indication of their potentialities for increasing productivity. Some more trials are, of course, necessary before making any recommendation regarding particular hybrids, in relation to local needs and a wider range of trials are under way during 1944.

Acknowledgement: The authors wish to record that these significant trials with hybrid *sorghums* could not have been launched but for the deep interest of Dr. S. Krishnamurthi, Director of Agriculture, Madras. The authors also wish to express their thanks to Dr. B. W. X. Ponnaiya, Dean and Addl. Director of Agriculture, Coimbatore for his guidance in the conduct of the trials and in the preparation of this paper. Thanks are also due to the Extension Specialist, Coimbatore, for arranging some of the scattered block trials included in this paper.