

Report on Output 1.2.4 (South Asia) of the HOPE Project

Impact of Potential Technologies for Post-Rainy Season Sorghum (in Maharashtra) and Pearl Millet (in Gujarat, Haryana, and Rajasthan) in India

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Impact of Potential Technologies for Post-Rainy Season Sorghum (in Maharashtra) and Pearl Millet (in Gujarat, Haryana, and Rajasthan) in India¹

N. Nagaraj², Sachin More³, Vasant Pokharkar⁴ and Surajit Haldar⁵

Preamble:

In India, sorghum is cultivated during rainy and post-rainy season in central and western Maharashtra, Northern Karnataka, Andhra Pradesh and Tamil Nadu. Sorghum is cultivated in Maharashtra both for grain and fodder during kharif (on 13.84 lakh ha) and rabi season (on 31.12 lakh ha). The rabi sorghum occupied 64 % of sorghum area. In Marathwada rabi sorghum is cultivated in 10.48 lakh ha, and in Western Maharashtra in 20.14 lakh ha.

HOPE project aims at **increasing productivity in the target areas from 35-40 % in four years**. Under this project six clusters and 12 villages are covered in Marathwada and Western Maharashtra.

Besides targeting improved varieties, targeting on the key recommended technologies, management practices like drilling of fertilizer along with seed, seed treatment, deep sowing, wide row spacing, optimum plant population, Integrated Pest Management (IPM) and Integrated Nutrient Management (INM) are crucial. In addition, moisture use efficiency towards reducing drought risk is vital.

Methodological Framework

Information relating to documentation of available and potential technologies for rabi sorghum has been elicited through review of literature, baseline studies, focused group meetings, interactions with scientists and farmers and the findings are summarized below.

¹ *Report on Output 1.2.4 (South Asia) of the HOPE Project, ICRISAT, Patancheru, India. May 2011*

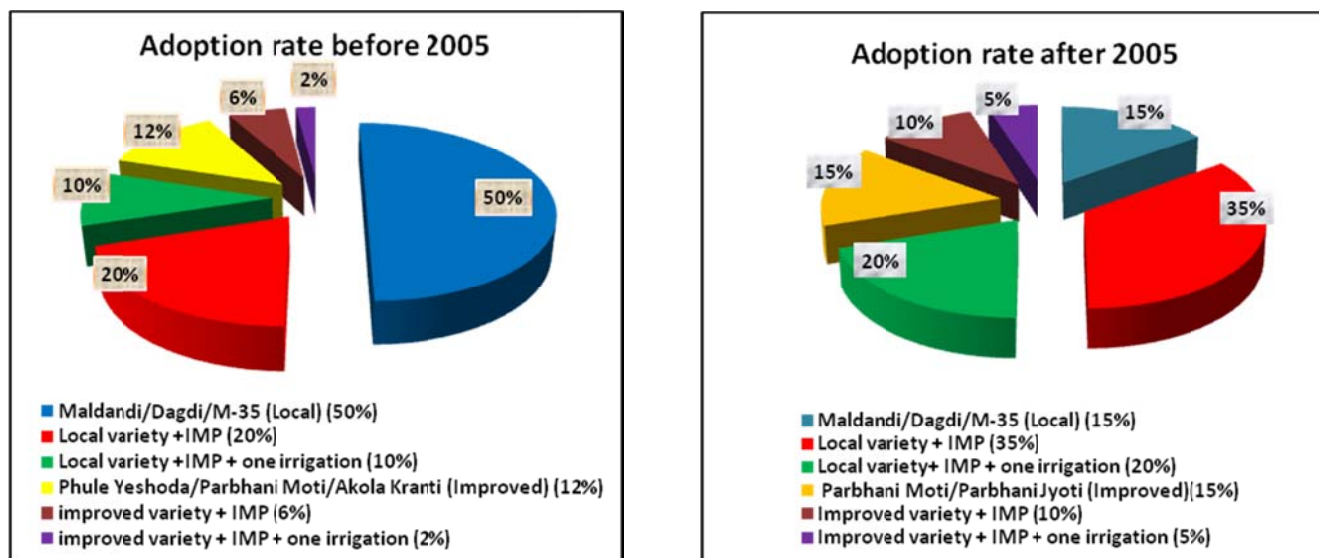
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Figure1. Adoption rate of technologies according to interventions before and after 2005



*IMP-Improved management practices

Table-1. Local and Improved Sorghum Technologies Before and After 2005 in Maharashtra, India

		Before 2005		After 2005	
		Local (3)	Improved (7)	Local (3)	Improved (14)*
Technologies/varieties		M-35-1, Dagadi, Maldandi	Swati, Selection-3, Phule Yashoda, Phule Mauli, Phule Uttara, Parbhani Moti, Akola Kranti	M-35-1, Dagadi, Maldandi	Phule Chitra, Phule Vasudha, CSV-22, Phule Anuradha, Phule Revati, Phule Panchami, Parbhani Jyoti
Salient features	Qualitative	<ul style="list-style-type: none"> • Drought resistant • Good grain and fodder quality 	<ul style="list-style-type: none"> • Suitable for medium to heavy soils • Early maturity • Earhead compact to semi compact • Drought resistant • Resistant to shoot fly, charcoal rot and stem borer 	<ul style="list-style-type: none"> • Drought resistant • Good grain and fodder quality 	<ul style="list-style-type: none"> • Suitable to wide range of soils • Early maturity • Earhead - compact to semi compact • Drought resistant • Resistant to shoot fly, charcoal rot and stem borer • Highly responsive to irrigation & fertilizer • Non lodging with tall stature, hence high fodder

	Quantitative	<ul style="list-style-type: none"> • Grain yield: 14-16q/ha • Fodder yield: 45-50 q /ha 	<ul style="list-style-type: none"> • Grain yield : 20-25 q/ha • Fodder yield: 70-80 q/ha 	<ul style="list-style-type: none"> • Grain yield: 14-16q/ha • Fodder yield: 45-50 q /ha 	<ul style="list-style-type: none"> • Grain yield: 25-45q/ha • Fodder yield : 55-95 q/ha
Improved Management Practices (IMP)**		<ul style="list-style-type: none"> • Around 80 % of the farmers adopting local varieties, practicing Less than 10 % of the recommended IMP 	<ul style="list-style-type: none"> • Around 20 % of the farmers adopting improved varieties, following 30 % of the recommended IMP 	<ul style="list-style-type: none"> • Around 70 % of the farmers adopting local varieties, practicing 25 % of the IMP 	<ul style="list-style-type: none"> • Around 30 % of the farmers adopting improved varieties following 55 % of the IMP
Markets and prices		<ul style="list-style-type: none"> • Lack of storage facilities • Grain price: Rs. 800-1000/qtls • Fodder price: Rs 250/qtls 	<ul style="list-style-type: none"> • Lack of storage facilities, processing, grading and packaging is in infancy • Grain price: Rs. 700-900/qtls • Fodder price: Rs 150/qtls 	<ul style="list-style-type: none"> • Access to regulated markets, and warehouse has widened • Grain price: Rs. 1200-1500/qtls • Fodder price: Rs 350/qtls 	<ul style="list-style-type: none"> • Access to regulated markets, retailing and warehouse has widened up • Grain price: Rs. 1200-1400/qtls • Fodder price: Rs 180/qtls

* In addition to varieties released before 2005

**IMP: Seed treatment, drilling of fertilizer along with seed, Opening of furrow, Wide row spacing, optimum plant population, IPM, INM

Documentation of available technologies for rabi sorghum

- Since the last four decades, local varieties occupied more than 70 % of rabi sorghum area and replacement of the local varieties by improved varieties has been sluggish due to grain and especially fodder quality
- Currently, local varieties dominate in Rabi Sorghum, as they occupy more than 50 % of rabi sorghum area. Thus there is a scope for introducing improved interventions with improved fodder and grain quality. Among the factors influencing adoption of sorghum varieties inter alia short duration, productivity, grain and fodder quality, drought resistance, disease and pest resistance, farmers rated grain and fodder quality as their first priority.
- Most of the farmers prefer local varieties due to their preference towards quality of the grain, taste and palatability of the fodder for livestock than profitability. Thus, high yielding varieties with grain and fodder quality on par with local races are required to improve the profitability of rabi sorghum.

Conclusion

Despite, market liberalization and privatization with increasing role of private companies in seed development and distribution, local varieties still dominate in rabi sorghum. It is crucial to improve linkages among farmers, scientists, extension personnel and private agencies involved in agricultural knowledge generation and dissemination with regard to rabi sorghum cultivars technology and markets.

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