An Economic Analysis of Hybrid Rice Technology in India

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Introduction

- Projected demand for rice in India by 2020-120 mts
- Hybrid rice most feasible option
- More than 80 % of the total hybrid rice area is in eastern Indian states
- Need for socio-economic analysis

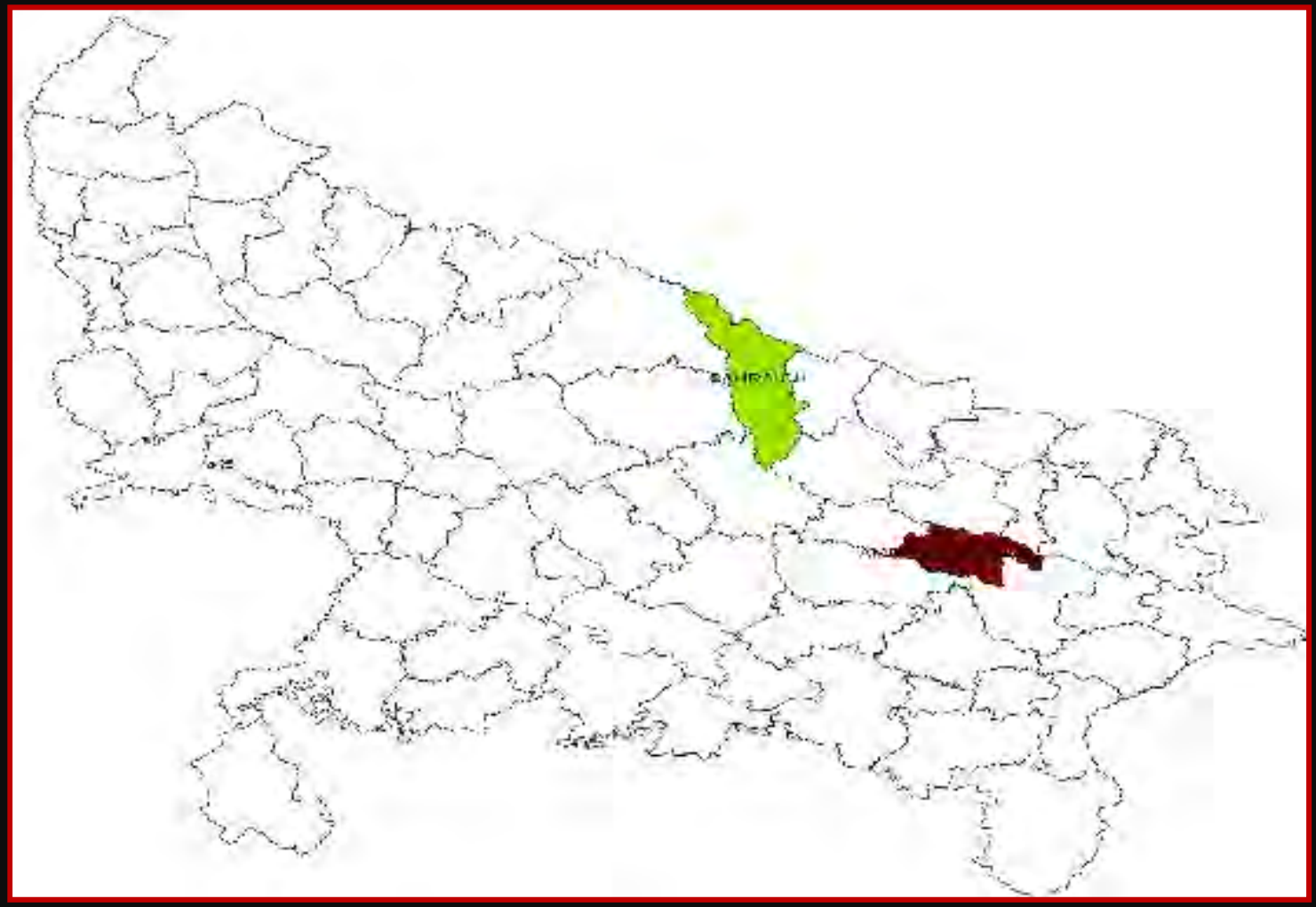
What did we do?

- Assess the impact of hybrid rice technology on productivity at farm level
- Compare the economics of inbred and hybrid rice cultivation
- Document the constraints in adoption of hybrid rice technology
- Work out the economics of hybrid rice seed production

Selection of the study area…….

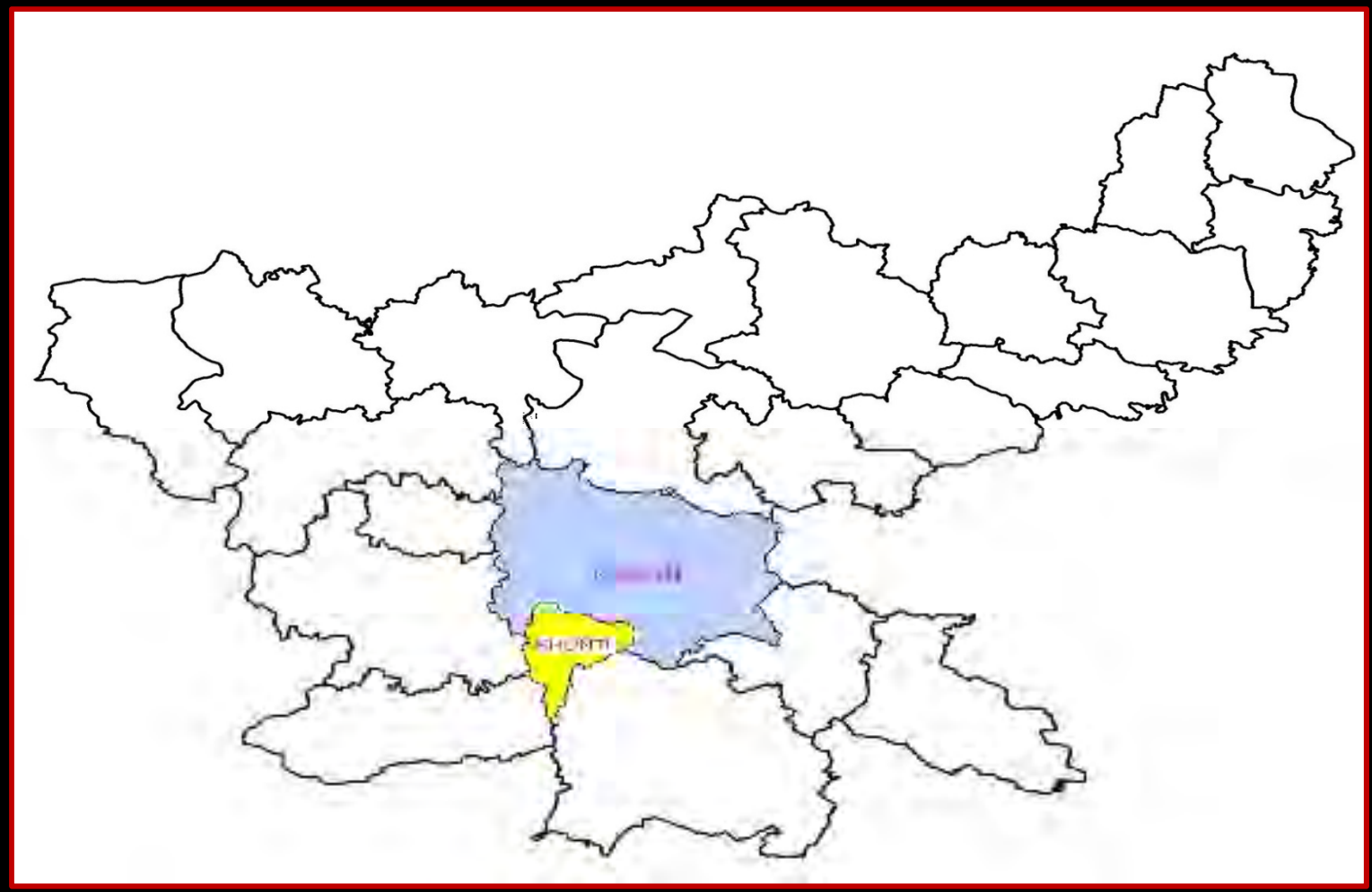
- Uttar Pradesh
- Jharkhand
- Andhra Pradesh

Hybrid Rice: Uttar Pradesh



Ambedkar Nagar and Bahraich

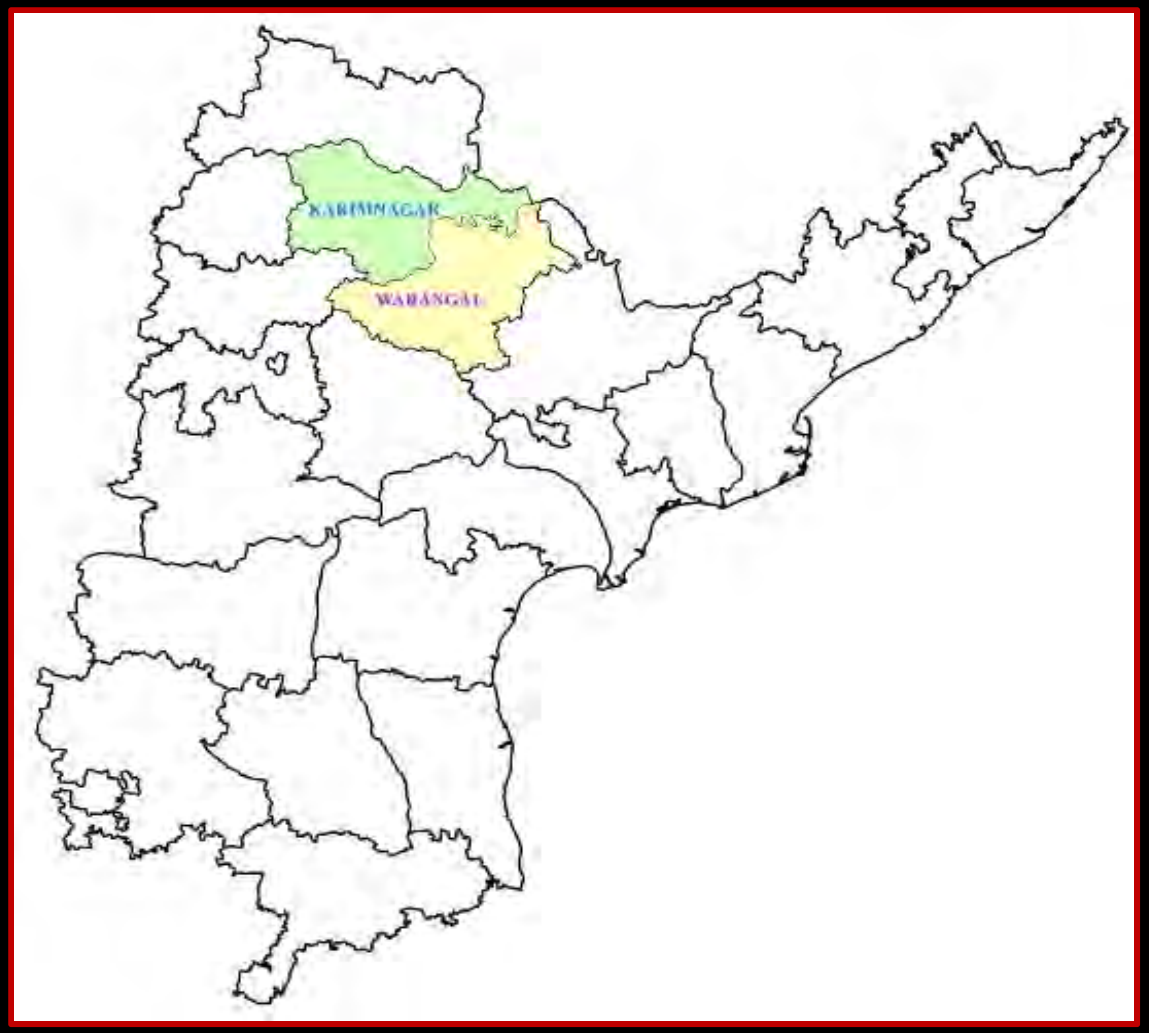
Hybrid Rice: Jharkhand



Ranchi and Khunti

Hybrid rice seed production: Andhra Pradesh

- Karimnagar
- Warangal

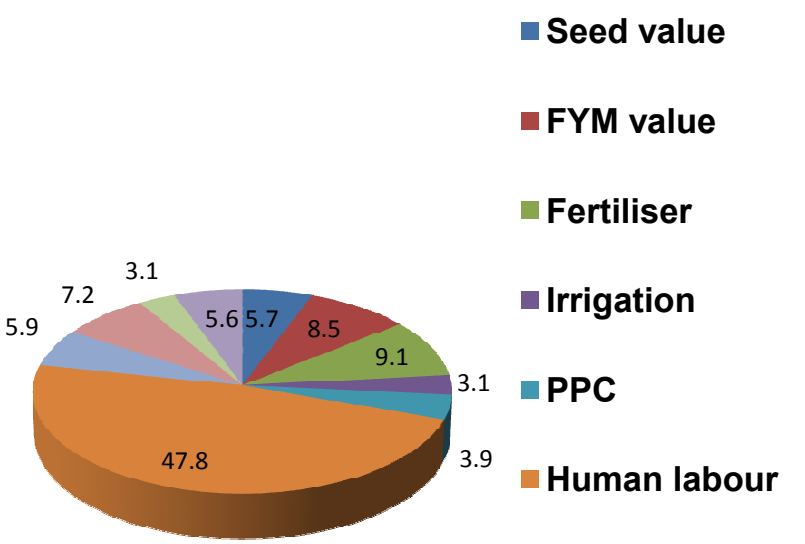


Cost structure of inbred and hybrid rice cultivation (Rs./ha) in Eastern Uttar Pradesh

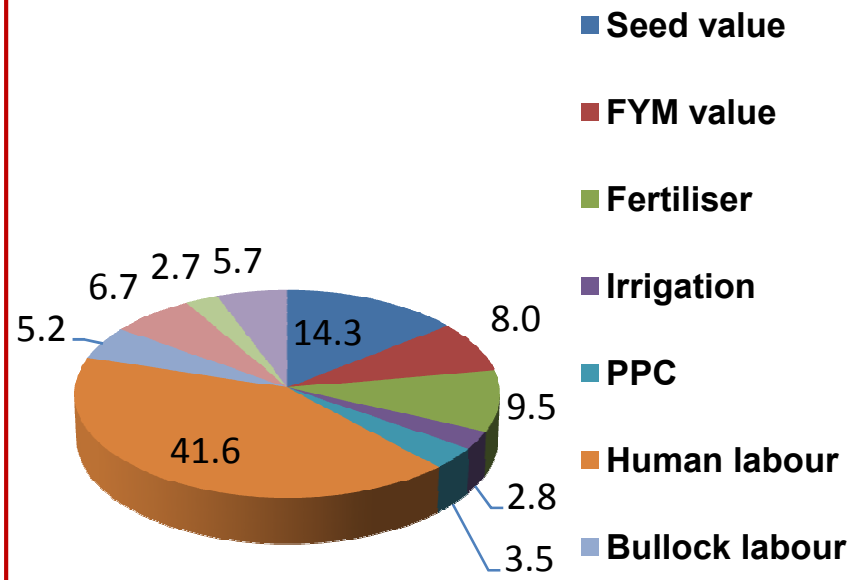
Particulars	Inbred	Hybrid
Seed value	938	2791
FYM value	1399	1560
Fertiliser	1496	1858
Irrigation	512	552
PPC	640	679
Human labour	7855	8109
Bullock labour	966	1021
Machine labour	1190	1310
Miscellaneous	502	518
Int. on work. Capital	930	1104
Total Input Costs	16,427	19,502

Comparison of cost structure in inbred and hybrid rice cultivation in Eastern Uttar Pradesh

Inbred rice cultivation



Hybrid rice cultivation

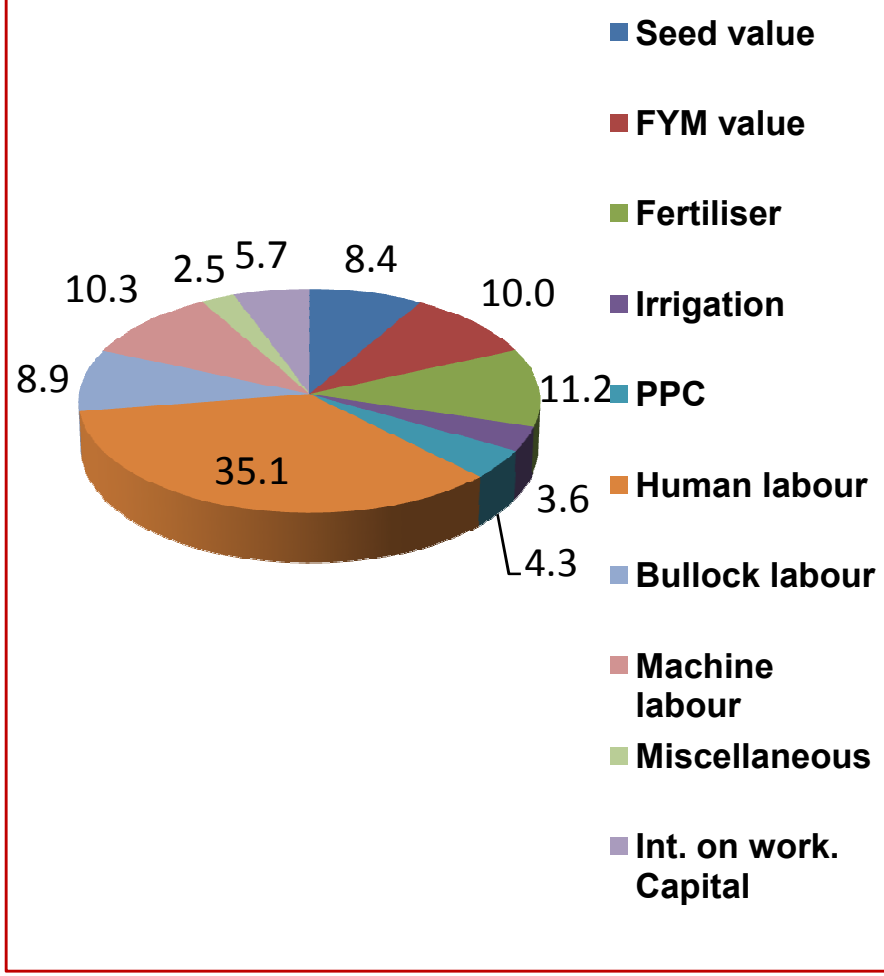


Cost structure of inbred and hybrid rice cultivation (Rs./ha) in Jharkhand

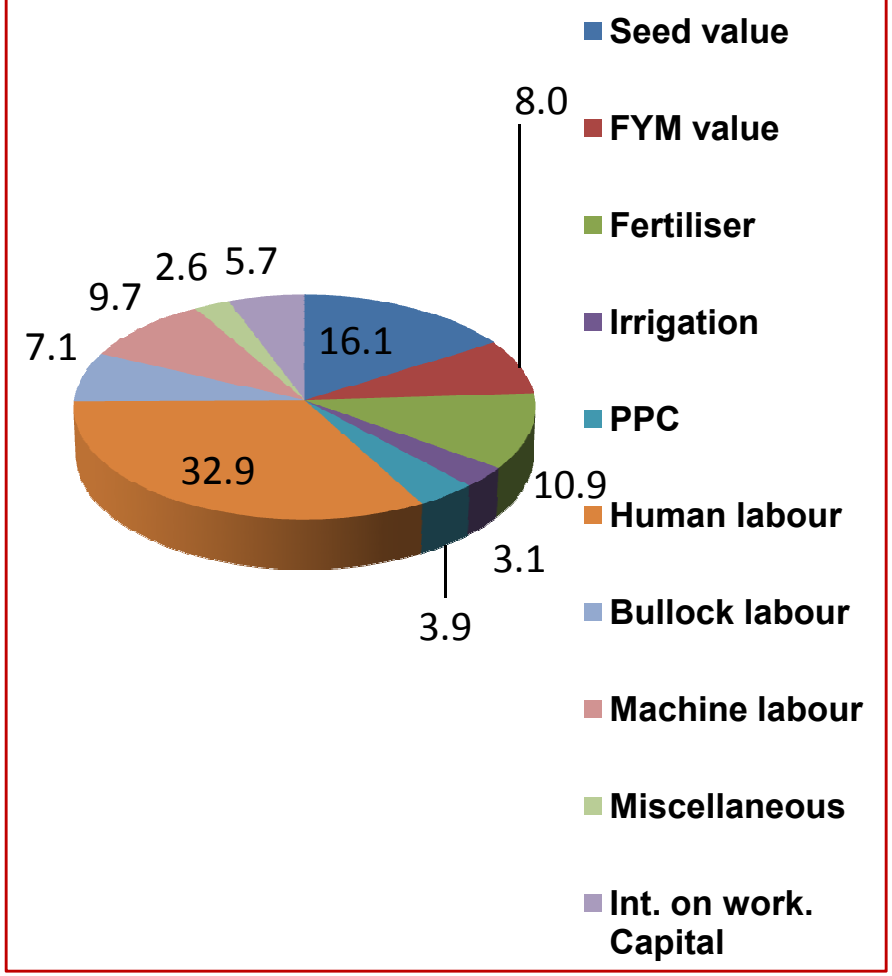
Particulars	Inbred	Hybrid
Seed value	1096	2648
FYM value	1300	1310
Fertiliser	1461	1797
Irrigation	465	508
PPC	558	650
Human labour	4568	5413
Bullock labour	1158	1174
Machine labour	1347	1597
Miscellaneous	328	436
Int. on work. Capital	736	932
Total input costs	13,017	16,463

Comparison of cost structure in Inbred and Hybrid rice cultivation in Jharkhand

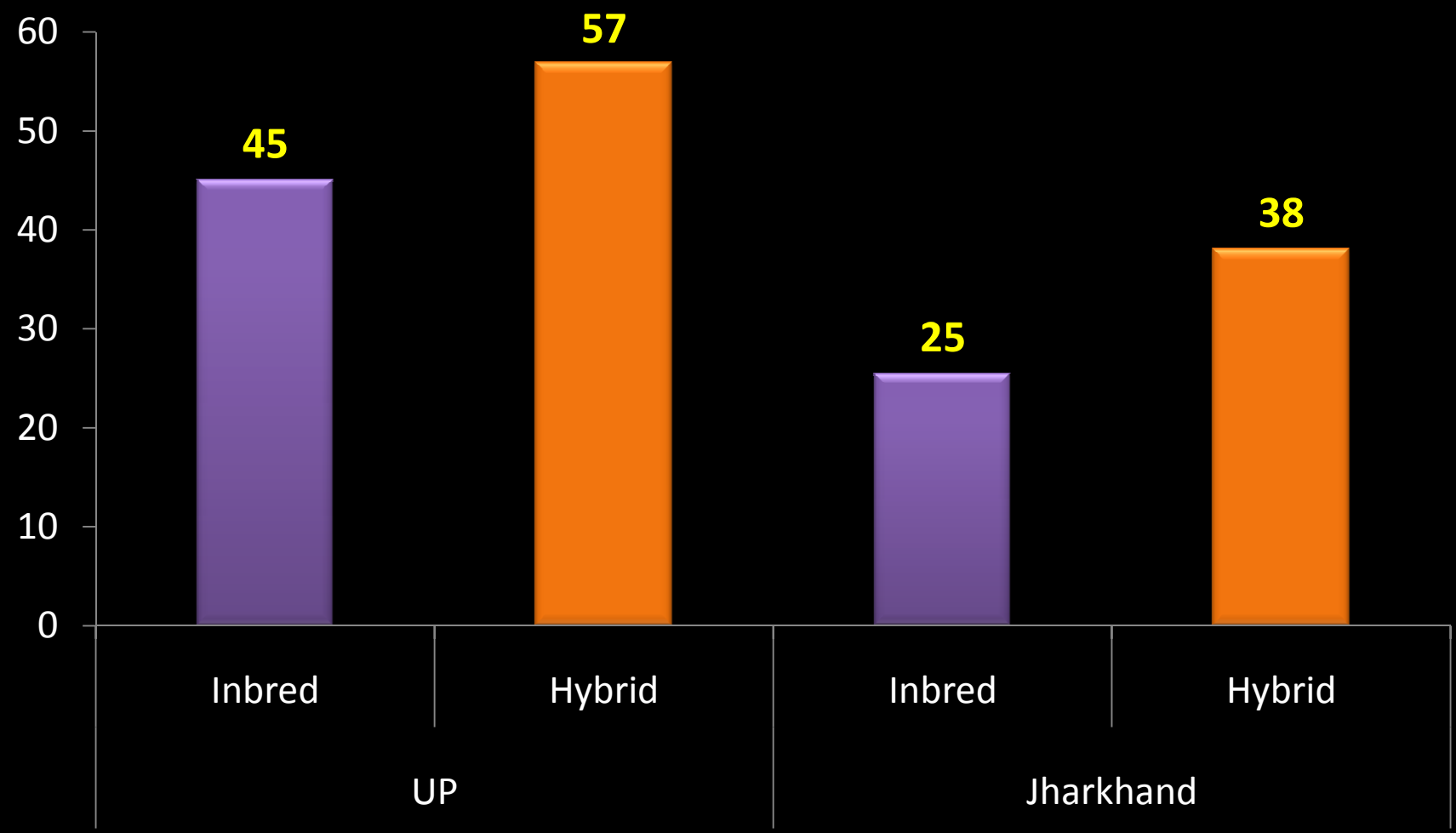
Inbred rice cultivation



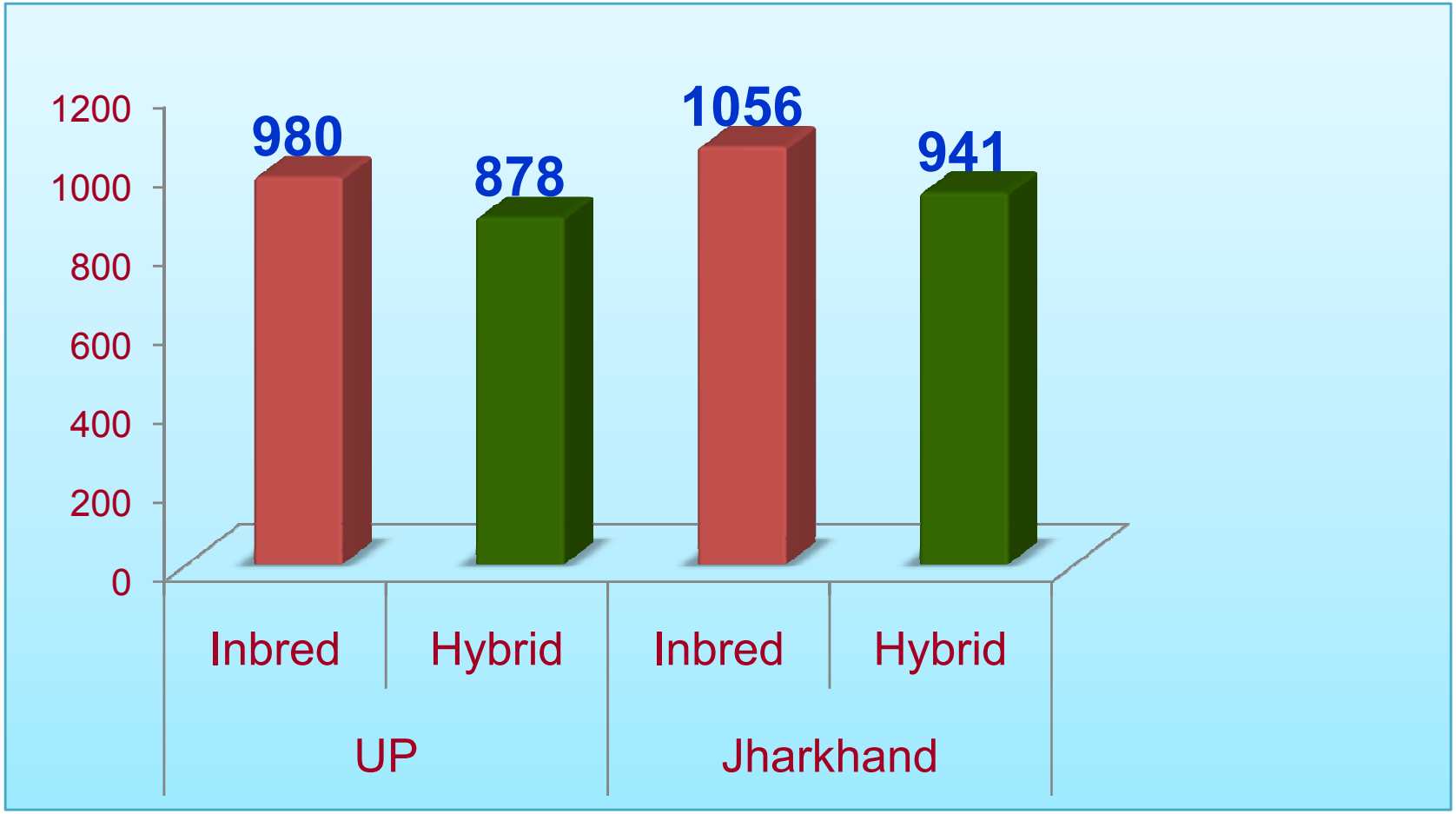
Hybrid rice cultivation



Comparison of yields of Inbred and Hybrids (Qtl/ha)

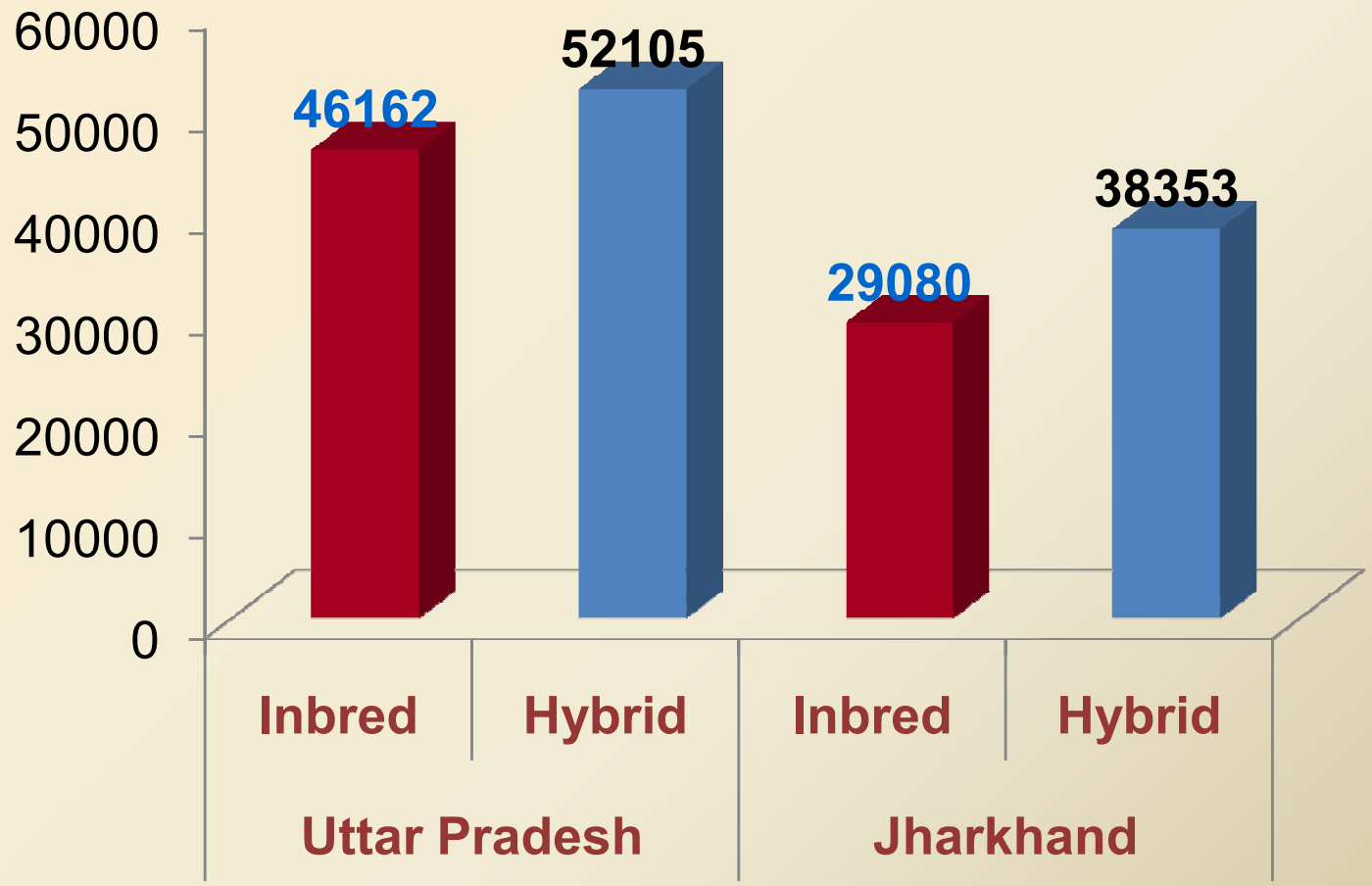


Comparison of price obtained by sample farmers for inbred and hybrid rice (Rs./Qtl)



Gross Returns still matter…

With favourable institutional support ..Returns will increase



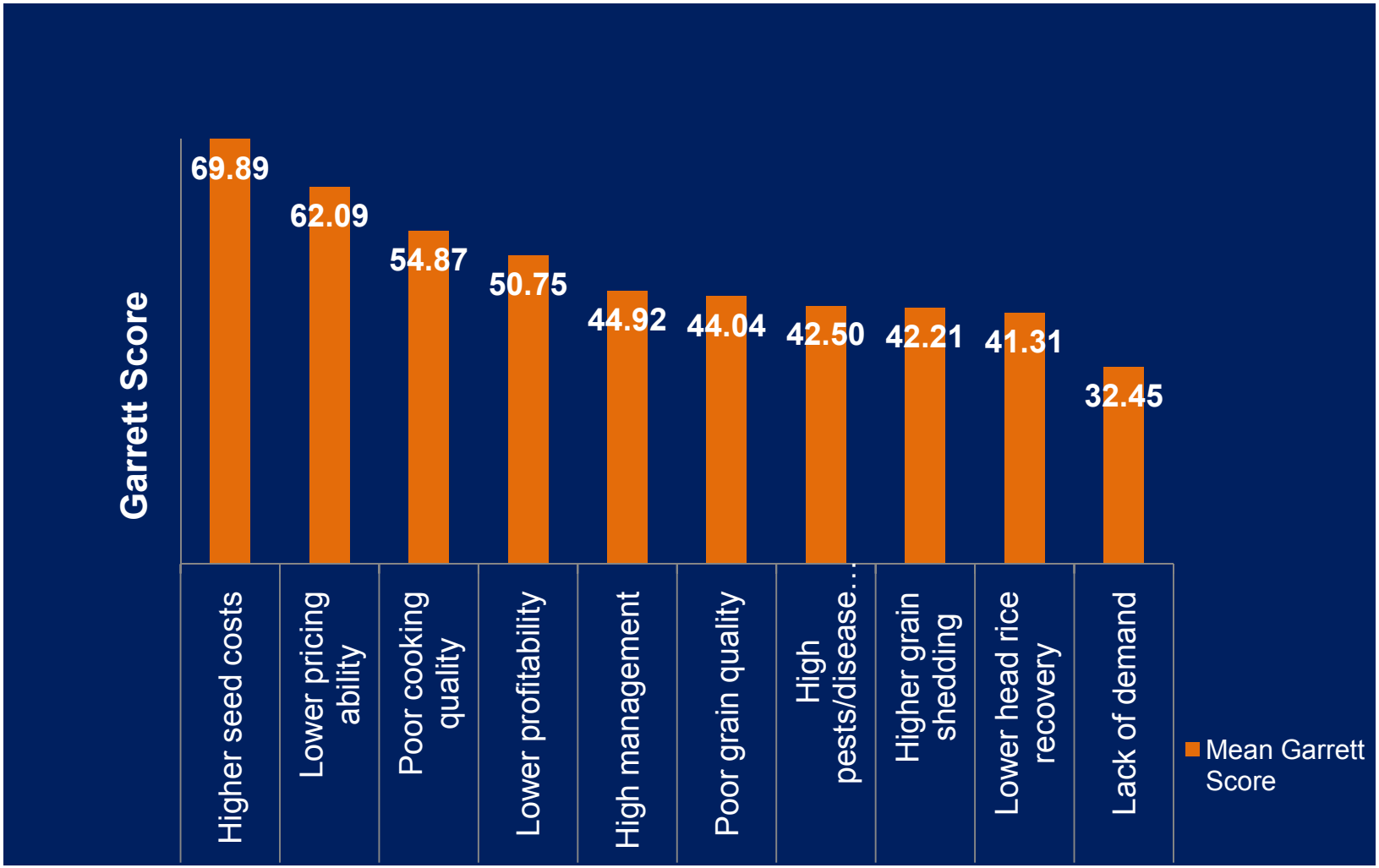
Profitability of inbred *vs.* hybrid rice cultivation in Uttar Pradesh (Rs./ha)

Particulars	Inbreds	Hybrids
Gross returns	46,162	52,105
Total input costs	16,427	19,502
Net returns	29,735	32,603

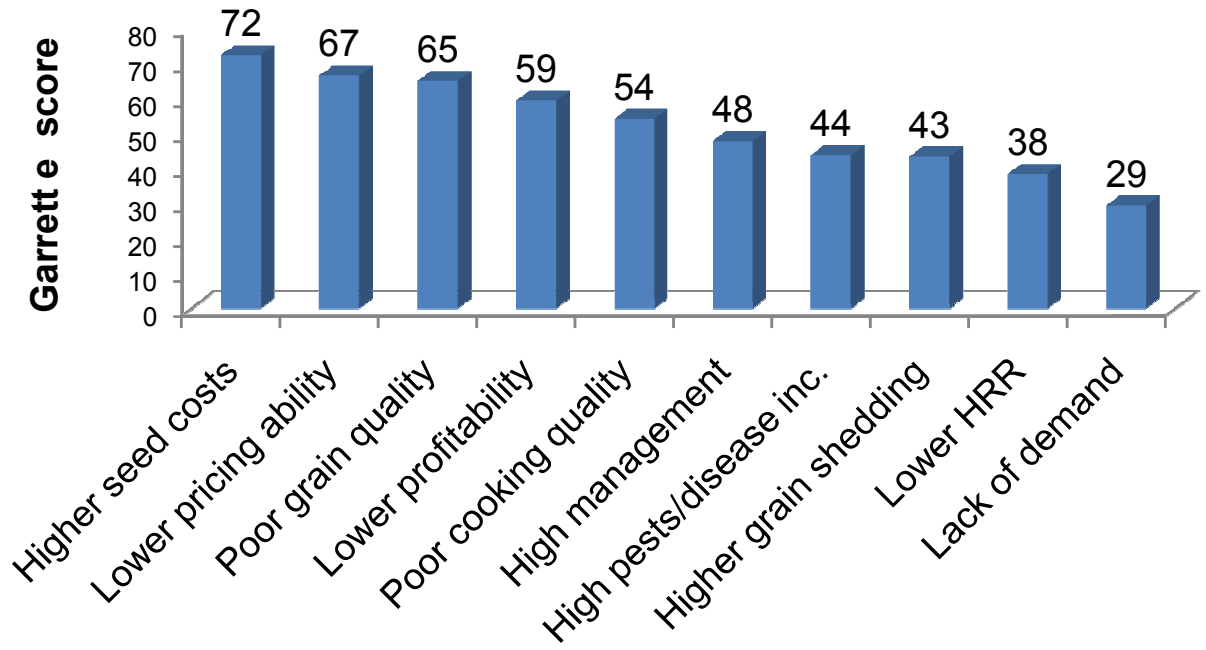
Profitability of inbred *vs.* hybrid rice cultivation in Jharkhand (Rs./ha)

Particulars	Inbreds	Hybrids
Gross returns	29,080	38,353
Total input costs	13,017	16,463
Net returns	16,063	21,890

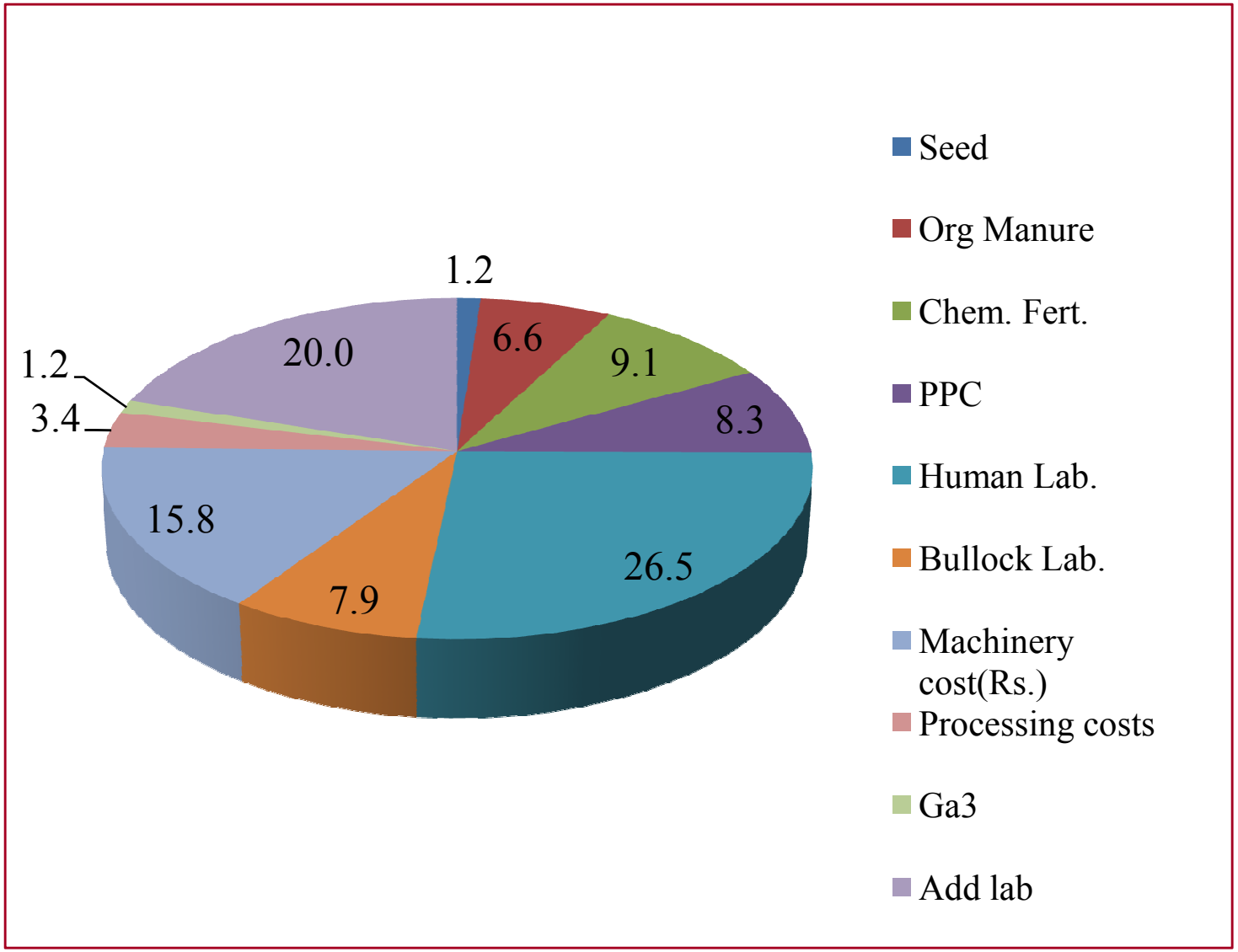
Ranking of Constraints in Uttar Pradesh



Ranking of constraints in Jharkhand



Cost structure of hybrid rice seed production in Andhra Pradesh



Returns from hybrid rice seed production in Andhra Pradesh

Hybrid seed yield (Kg/ha)	2000.5
Seed price (Rs./Kg)	51.03
Value of hybrid seed (Rs./ha)	102085.5
Restorer Yield (Kg./ha)	1868.25
Price of restorer per kg (Rs.)	7.22
Value of restorer (Rs./ha)	13488.77
Straw value (Rs./ha)	3127.5
Total returns (Rs./ha)	118701.8

Hybrid rice seed production

Gross returns (Rs./ha)	1,18,741
Total input costs (Rs./ha)	65,128
Net returns (Rs./ha)	53,613

Conclusions

- Hybrid rice has the potential to contribute significantly to improve production and sustain food security
- Focus on making hybrid rice seed available at lower costs
- Identification of potential areas for hybrid rice seed production – should be based on sound socio-economic feasibility
- It is suggested that institutional and factorial contribution are considered for effective strategies for large scale adoption of hybrid rice

Thank you