



Asian Development Bank



Baseline Survey of Basmati Rice Value Chain in Punjab

Social Sciences Division
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Project Team

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Introduction and Background

- **Basmati rice is transforming from simple dishes to delicacies. The exquisite aroma, unique long grain, great taste and silky texture has a distinguished characteristic which matchless to any other grain in the world.**
- **Pakistan enjoys an edge in the production of basmati rice and is second largest producer of basmati rice in the world. Pakistan's traditional customers of rice are African and Middle Eastern countries. However, at present, Indian basmati enjoys about two-third of international market share.**
- **Rice accounts 3.1 percent to the value added in agriculture and 0.6 percent to national GDP**
- **Pakistan earned US\$ 1376 Million from rice exports during 2015-16, of which one-fourth was accrued from Basmati exports.**
- **Pakistan is fast loosing its Basmati rice market from the last 3-4 years, which is worrisome for the policy makers, researchers and farming community of the area.**
- **At present India is enjoying competitiveness in basmati rice mainly attributed to the widespread cultivation of Pusa Basmati-1121 which is comparatively higher yielding than the basmati varieties cultivated in Pakistan**

Introduction and Background

- **The main constraints of low basmati yield include cultivation of basmati varieties non-resistant to Bacterial Leaf Blight (BLB) and their less tolerance to drought spells**
- **Currently the BLB resistant varieties are not available to farming community due to limited research facilities for rice crop**
- **Moreover harvest and post-harvest losses further aggravate the low basmati yield situation**
- **Keeping in view the importance of basmati rice cultivation for the farmers and national exchequer, the area expansion as a source of growth in basmati production is no more feasible for maintaining international competitiveness of Pakistani basmati rice.**
- **This calls for an extensive and comprehensive review and examination of basmati rice sector from its agricultural R&D to its production, processing and export**
- **Present study is aimed at capturing the pre-project situation regarding the entire value chain of basmati rice in Punjab**

From TORs to Research Methodology

TORS	Methodology	Farmers questionnaire sections	Other Stake Holders Sections
To update the status of existing land holding and cropping patterns followed by farmers in the basmati rice growing belt of the Punjab	Farmer level questionnaire	Farm profile (SML), cropping pattern,	
To explore the presence of different basmati varieties and current yield levels of different basmati varieties, production patterns (input & output levels), cost of production and returns of basmati rice in project area.	Farmer level questionnaire + RRI Kala Shah Kaku (discussions) + Private sector in seed production and marketing	varietal distribution and yield status, crop management practices, returns analysis, labor employment patterns,	Crop reporting services Breeding strategies/ considerations in view of varietal developments in India and export market

From TORs to Research Methodology

TORS	Methodology	Farmers questionnaire sections	Other Stake Holders Sections
<p>To examine the current status of BLB attack intensity and losses in basmati rice. The resistance of existing basmati varieties against bacterial leaf blight (BLB) will also be explored</p>	<p>Farmers + Breeders + Pathology (questionnaire + technical discussion with biological scientists)</p>	<p>Disease attack feedback including BLB, current status of BLB attack by variety (resistant & susceptible), control strategies</p>	<p>BLB resistant varieties in pipeline, carriers and causes, controls</p>
<p>To generate information about present status of adoption of direct seeding with respect to basmati rice. The status of availability and adoption if any of direct seeding of rice through improved seeder/drill will be explored</p>	<p>Farmer level questionnaire + farm machinery + Machinery manufacturers in Daska (availability, cost/ price, farmers' interest, issues in adoption)</p>	<p>Rice transplanting methods and area devoted to each method, performance feedback, Direct seeding [BC/drill] area and cost trade-offs vis-à-vis nursery raising</p>	<p>Machinery manufacturers --- machine cost, performance, farmers' interest, issues involved,</p>

From TORs to Research Methodology

TORS	Methodology	Farmers questionnaire sections	Other Stake Holders Sections
To generate information on acceptance / adoption of direct seeding methods by farmers using seed drills and other direct seeding methods	Farmer level questionnaire + Machinery manufacturers in Daska (availability, cost/ price, farmers' interest, issues in adoption)	Adoption/non-adoption response, issues in adoption	Tractor owners – machinery related issues (costs, rental services potentials)
To explore the availability and adoption of mechanical rice transplanting and its impact on labour saving and improvement in plant population -- employment implications	Farm machinery experts + Daska + farmer questionnaire with issues [<i>estimation of the degree of employment involved in rice transplanting</i>]	cost-benefit analysis of mechanical versus manual transplanting, improvements in plant population, land levelling concerns,	Machinery manufacturers – cost, adoption potentials (farmers' interest) cost-benefit analysis, rental services potentials

From TORs to Research Methodology

TORS	Methodology	Farmers questionnaire sections	Other Stake Holders Sections
<p>To examine the harvesting patterns and machinery used in harvesting of basmati rice, its implications on paddy prices received. The Present technology being used for paddy drying at every stage of rice value chain to reduce moisture content and to avoid aflatoxin and infestation level of aflatoxin if any will also be explored</p>	<p>Farmers questionnaire [mechanical vs manual], harvesters [adjustments in machine for rice harvesting vis-à-vis wheat harvest] Rice husking/Sheller's technology,</p>	<p>Crop harvesting strategies, use of rice chopper, On farm temporary storage issues, Farmers awareness about aflatoxin, health and price implications of aflatoxin,</p>	<p>Combine harvesters differences between rice and wheat harvesting, implications on paddy quality & price availability of rice specific combine & its advantages over conventional harvesters, Rice millers – sources of aflatoxin development (stores types & methods, packaging material etc), aflatoxin detection at the time of paddy purchasing,</p>

From TORs to Research Methodology

TORS	Methodology	Farmers questionnaire sections	Other Stake Holders Sections
To examine the current losses in harvesting and postharvest management of basmati rice. Sources / reasons of yield gaps in basmati rice production for prioritize the rice productivity enhancement and narrowing yield gap will be explored	Farmers questionnaires, combine harvesters, rice millers, wholesalers, retailers, breeders	Losses in combine harvesting (rice combine harvester vis-à-vis conventional combine harvesters), transport, storage,	Commission agent – quality losses due to aflatoxin, losses during storage, transport, etc. Rice millers – losses at storage, drying, transport, etc.

From TORs to Research Methodology

TORS	Methodology	Farmers questionnaire sections	Other Stake Holders Sections
To generate information on availability and adoption of rice harvesters and paddy drying techniques and equipment	Farmers questionnaires Rice millers, combine harvesters	Overtime use of combing harvesting method and its implications on timely plantation of wheat, paddy drying practiced before selling, etc.	Rice millers – detailed paddy drying related information in the checklist, Dryer technologies (imported, domestic alterations, Indian, Chinese, etc.) with implications on generation of broken rice.
To explore the issues, constraints and opportunities in the basmati rice value chain	Data analysis		Meetings with Rice millers & exporters Export volume & price data

Progress So Far

- **Farmers' Level Questionnaire**
 - **Developed, pre-tested and finalized**
- **Rice Millers' Questionnaire**
 - **Developed, pre-tested and finalized**
- **Rice Commission Agents'/Seed Dealers Level Questionnaire**
 - **Developed and pre-tested at some sites**
- **Rice Breeders Questionnaire**
 - **Developed, discussed and shared for comments**
- **Rice Exporters Questionnaire**
 - **Developed, but list is awaited from REAP for pre-testing and finalization**
- **Combine Harvesters' Level Questionnaire**
 - **Developed, but not pre-tested yet**
- **Rice Milling Machinery and Dryers' Manufacturers**
 - **Check list yet to be developed after informal meeting/discussion**
- **Data Collection from Secondary Sources in Progress Side-by-Side**



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