
Quality determinants and markets of ricebean in India and Nepal

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Content

- ❖ Supply chain analysis
 - Farmers
 - Intermediaries
- ❖ Consumer preference index (MLTVI)
 - Pre-test
 - Main analysis
- ❖ Implications & conclusions

Supply chain

> Data collection

- ❖ review of the grey literature on the legumes supply-chain in India and Nepal
- ❖ interviews with legumes market experts at all stages of the SC
- ❖ observation of transaction practices on organized legumes markets

Supply chain

> Data analysis

Based on the data collected:

- ❖ Identification of:
 - Categories of SC-agents and their key activities
 - product related information flow between the agents
 - * Production practices
 - * Consumer preferences implicit in prices
 - transaction relationships
 - * formal rules and regulations
 - * informal norms and practices that govern the conduct of SC-agents
- ❖ Implication for the introduction of new ricebean varieties

Supply Chain Analysis

- ❖ Conducted surveys from January – March 2008 & January – February 2009

- ❖ Farmer: **67**
 - 2008: 32
 - 2009: 35
 - India: 51
 - Nepal: 16

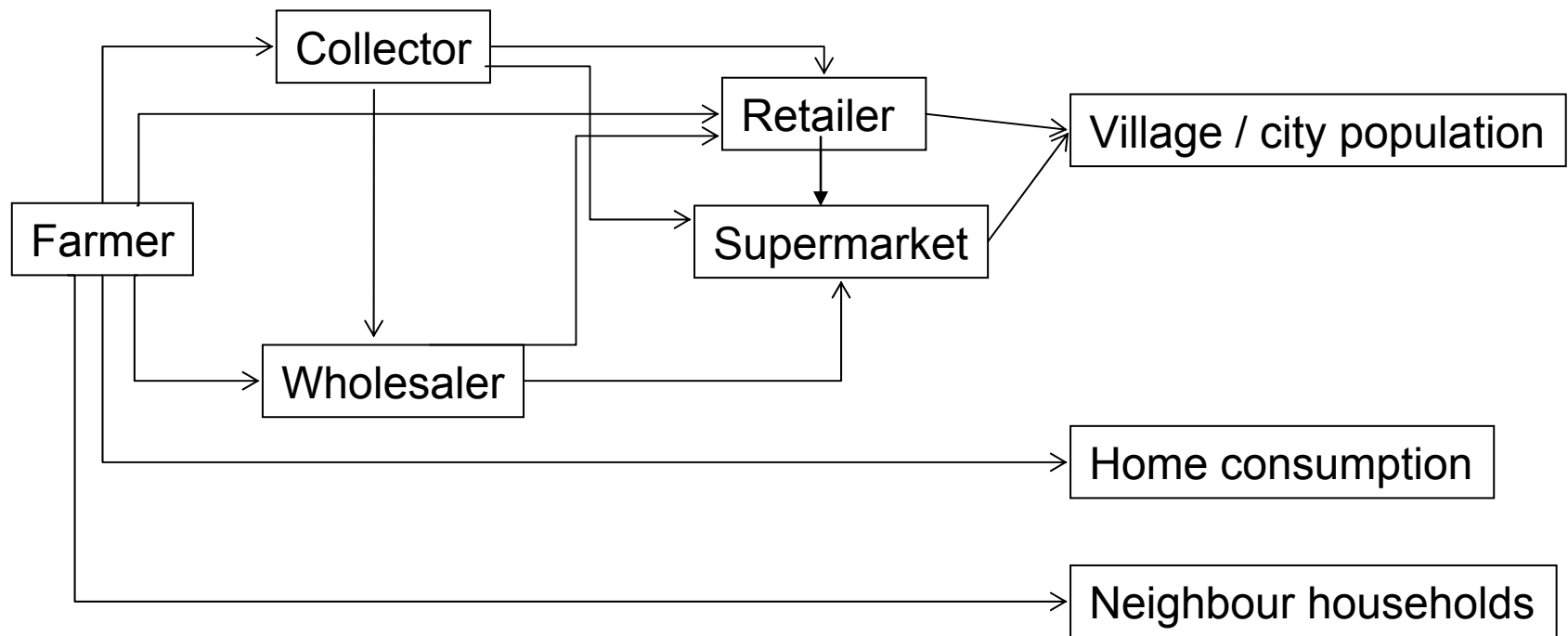
- ❖ Intermediaries: **108**
 - 2008: 55
 - 2009: 53
 - India: 66
 - Nepal: 42

Ricebean Supply Network

Production
Drying
Sorting

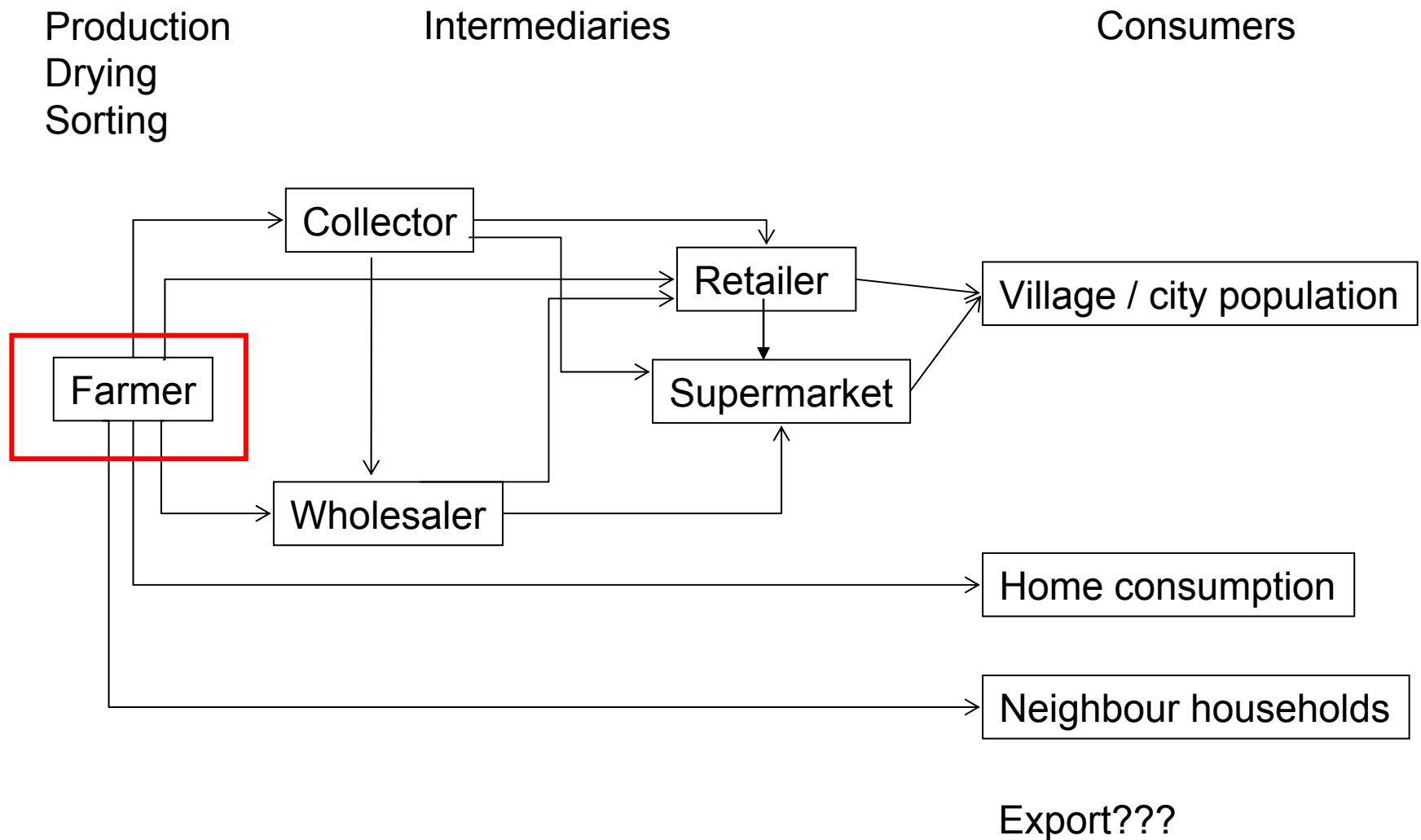
Intermediaries

Consumers



Export???

Ricebean Supply Network



Farmers > Ricebean

- ❖ Area: a lot of local units without standard conversion factors
- ❖ Yield: high variation from year to year due to heavy rain or not enough rain
- ❖ All farmers get their seeds from harvest of the previous year

	N	Minimum	Maximum	Mean
Ricebean in kg/ farmer	67	0,5	350	44,10
Seeds in kg sown out	66	0,1	25	2,26

Seeds		N	%
	keep seeds from last year	35	100,0
Missing		33	
Total		68	

Farmers > Ricebean

Storing			
		N	%
	No storing	10	29,4
	Storing	24	70,6
	Total	34	100,0
Missing		34	
Total		68	

Drying			
		N	%
	do it	35	100,0
Missing		33	
Total		68	

Cleaning			
		N	%
	do it	35	100,0
Missing		33	
Total		68	

Sorting			
		N	%
	do not do it	25	71,4
	do it	10	28,6
	Total	35	100,0
Missing		33	
Total		68	

Plant protection			
		N	%
	do not do it	24	70,6
	do it	10	29,4
	Total	34	100,0
Missing		34	
Total		68	

Farmers > Ricebean

	N	Minimum	Maximum	Mean
Homeconsumption %	67	5	100	71,13
Distance to selling point in km	34	0	80	13,37

Sell ricebean on market?

	N	%
no	39	57,4
yes	29	42,6
Total	68	100,0

Who buys ricebean from farmers

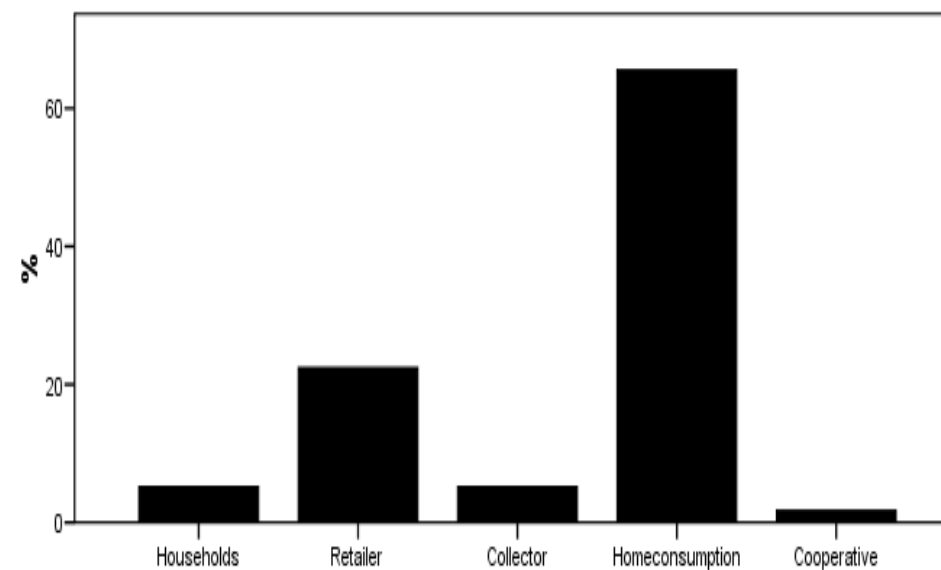
	N	%
Households	3	4,4
Retailer	13	19,1
Collector	3	4,4
Homeconsumption	38	55,9
Cooperative	1	1,5
Total	58	85,3
Missing	10	14,7
Total	68	100,0

Farmer Prices Nepal

	Minimum	Maximum	Mean
Price in Rs/kg	21,00	47,50	30,50

Farmer prices India

	Minimum	Maximum	Mean
Price in Rs/kg	11,00	35,00	20,76



Farmers > all pulses

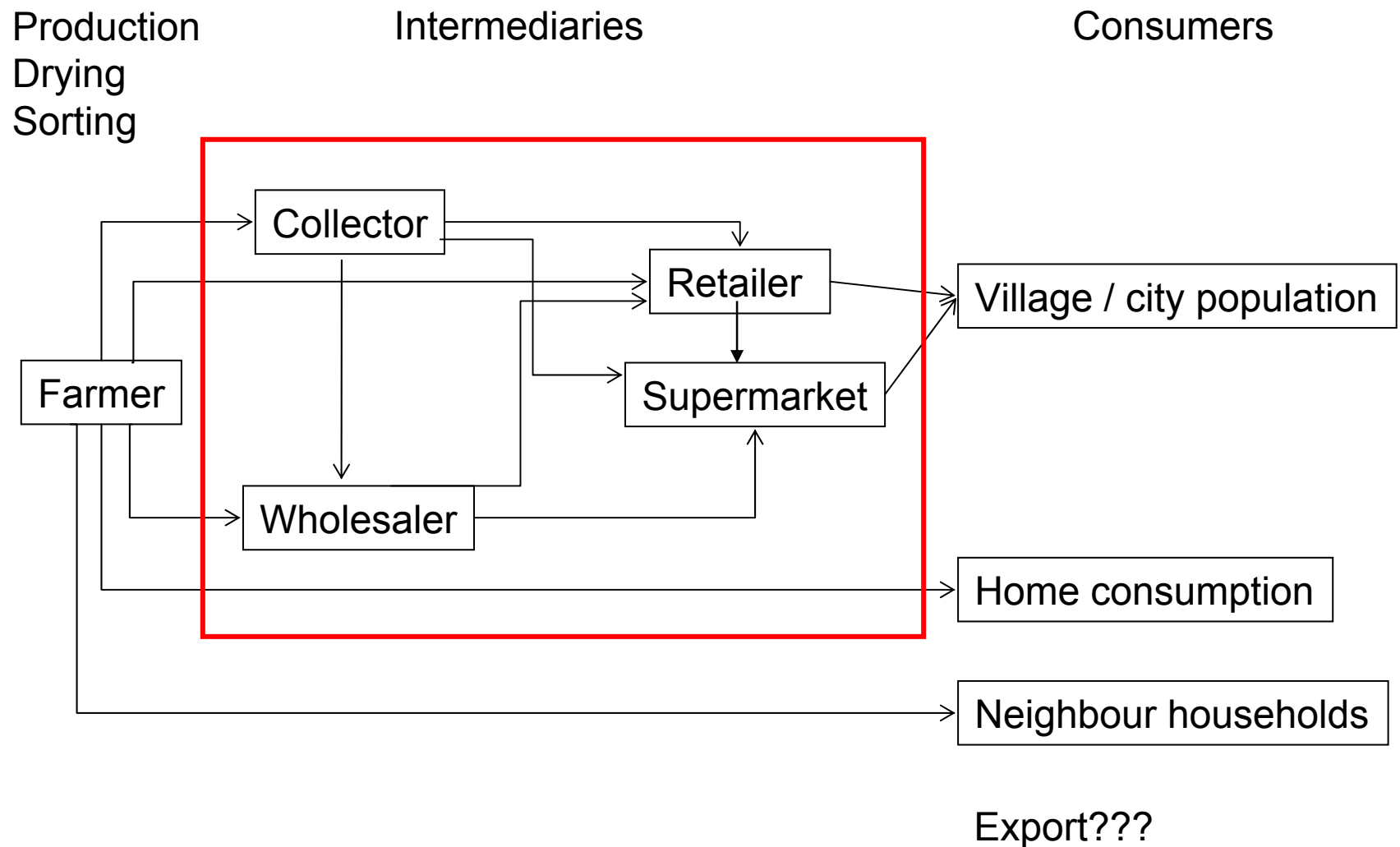
- ❖ Pulses grown (max. 6)
- ❖ Buyer/ consumers of pulses

Pulses	
Ricebean	67
Black gram	31
Kidneybean	27
Cow pea	15
Horsegram	24
Pigeonpea	9
Soybean	34
Lentil	6
Chickpea	2

N:67

Buyer %	
Households	5
Retailer	26
Homeconsumption	65
Cooperative	4

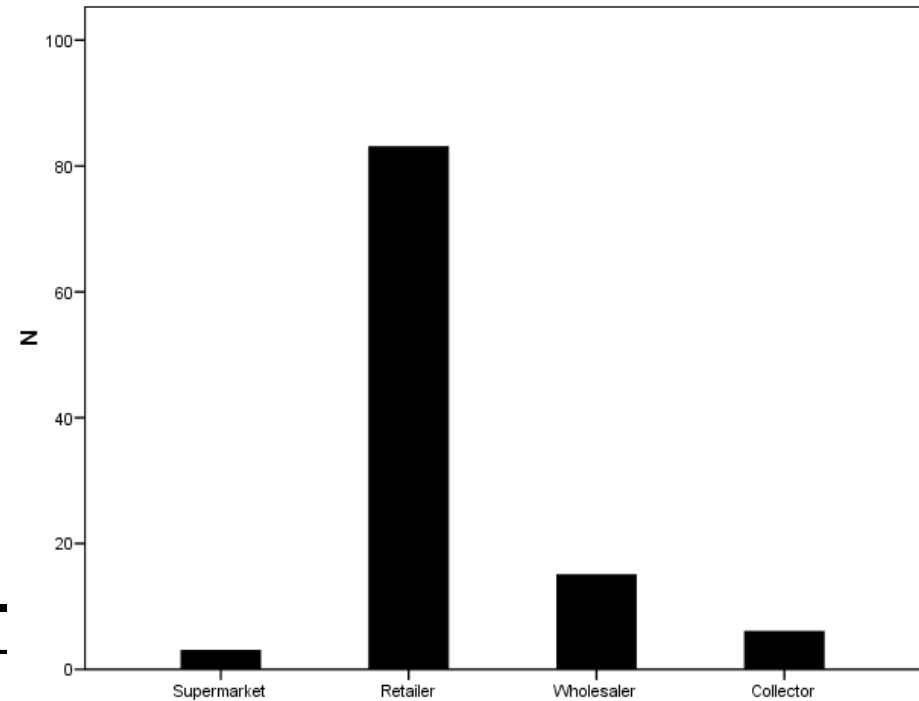
Ricebean Supply Network



Pulse intermediaries

Types & number of actors

	N	%
Supermarket	3	2,8
Retailer	83	76,9
Wholesaler	15	13,9
Collector	6	5,6
Total	107	99,1
Missing	1	,9
Total	108	100,0



Prices India

	N	Minimum	Maximum	Mean
Buying price	62	12	36	24,34
Selling price	64	12,2	50	28,50

Prices Nepal

	N	Minimum	Maximum	Mean
Buying price	37	18	90	44,88
Selling price	39	25	100	51,35

Sources of ricebean

Source of ricebean

	N	%
farmers	62	57
wholesalers	40	37
collectors	24	22
retailers	14	13

Source of ricebean for supermarkets

	N	%
farmers	0	0,0
wholesalers	2	66,7
collectors	0	0,0
retailers	1	33,3
N	3	

Source of ricebean for retailer

	N	%
farmers	51	52,0
wholesalers	30	30,6
collectors	14	14,3
retailers	3	3,1
N	98	

Source of ricebean for wholesaler

	N	%
farmers	6	27,3
wholesalers	7	31,8
collectors	9	40,9
retailers	0	0,0
N	22	

Source of ricebean for collectors

	N	%
farmers	4	66,7
wholesalers	1	16,7
collectors	1	16,7
retailers	0	0,0
N	6	

Trader > Information

Information sources	N	Information Media	N
Friends/relatives	26	Phone	38
Farmers	43	Internet	2
Retailer	49	TV, radio	5
Collectors	37	Newspaper, bulletins	14
Wholesaler	66		
Processors	4		
Consumers	22		
Ministry of agriculture	4		
Research institute	8		

Trader > Types of information

	N
Price	79
Quality	46
Demand	32
Supply	23
Weather	6
Treatment	17
Varieties	12
Technology	5

N:108

Implications

- ❖ New varieties has to be introduced on farmer stage
- ❖ Important information multipliers are wholesalers
- ❖ A great part of ricebean is moved in short supply chains:
 - Farmers-Retailer-Consumer
- ❖ Phone is a good information medium
- ❖ Price is a very important information when trading ricebean

Consumer preference index (CPI) - MLTVI

- ❖ Pre-test
 - Identify relevant quality characteristics
 - Test practicable lab analyses for each characteristic

- ❖ 2007: 73 samples of different pulses in Nepal
- ❖ 40 samples analysed at NARC
- ❖ 39 samples analysed in Kiel
- ❖ 6 samples double checked

Quality determinants-MLTVI

- Collected 167 ricebean samples in Nepal and India (2008)
- Analysed in laboratories for several characteristics
- Estimation of ricebean price as a function of quality characteristics

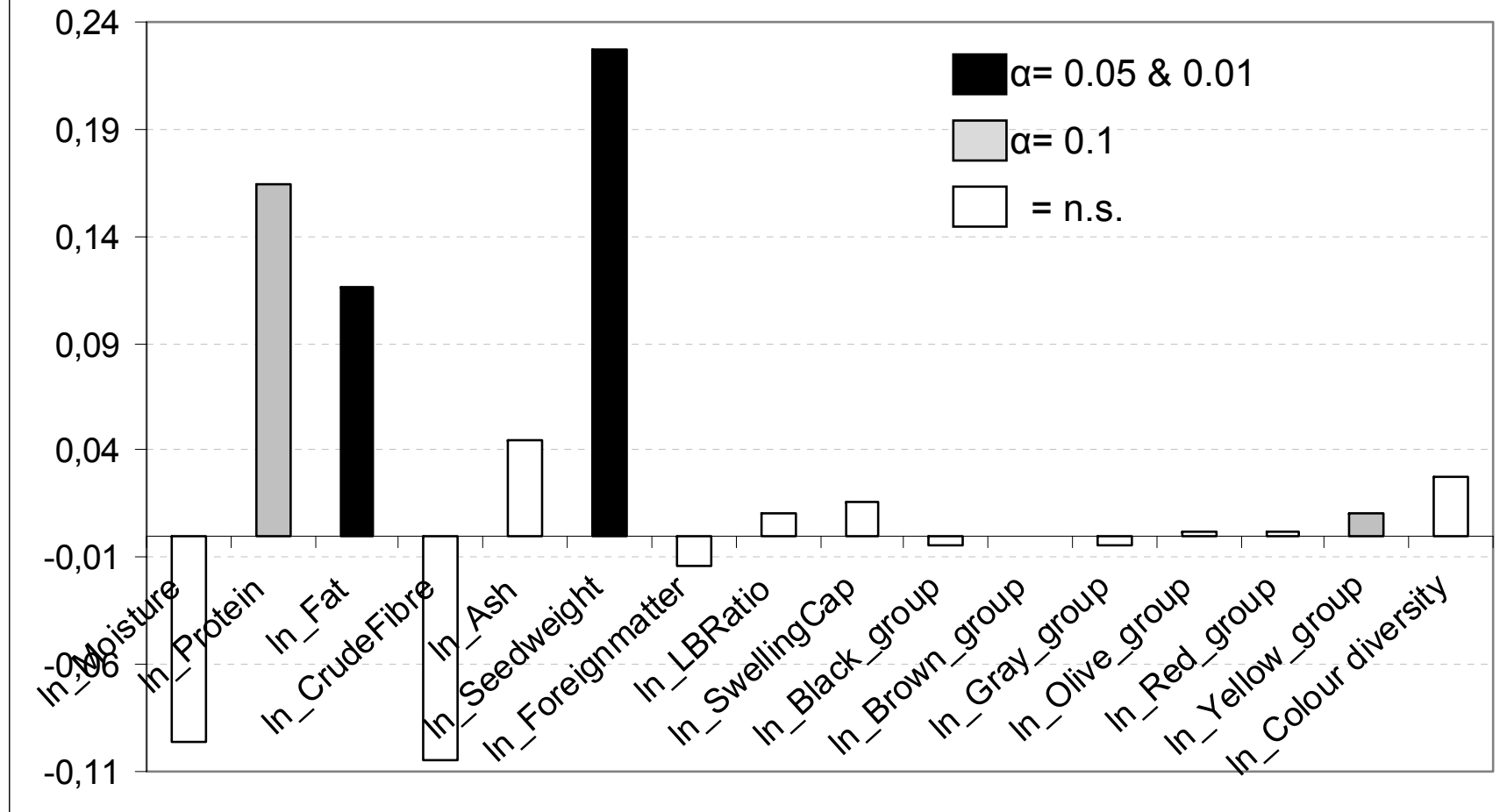
$$\ln P_i = \ln \alpha + \beta_1 \ln q_{1i} + \beta_2 \ln q_{2i} + \sum_j \beta_j \ln q_{ji} + \mu_i$$

Characteristics

Characteristic	Unit
Price Nepal	Nepalese Rupees (NPR)/kg
Price India	Indian Rupees (INR)/kg
Moisture	%
Protein	%
Fat	%
CrudeFibre	%
Carbohydrates	%
Ash	%
Seedweight	g/100 seeds
Foreignmatter	%
LBRatio	Ratio length to breadth
Water uptake ratio	Ratio of weight increase
Swelling capacity ratio	Ratio of Volume increase
Colour diversity	Herfindahl-Index

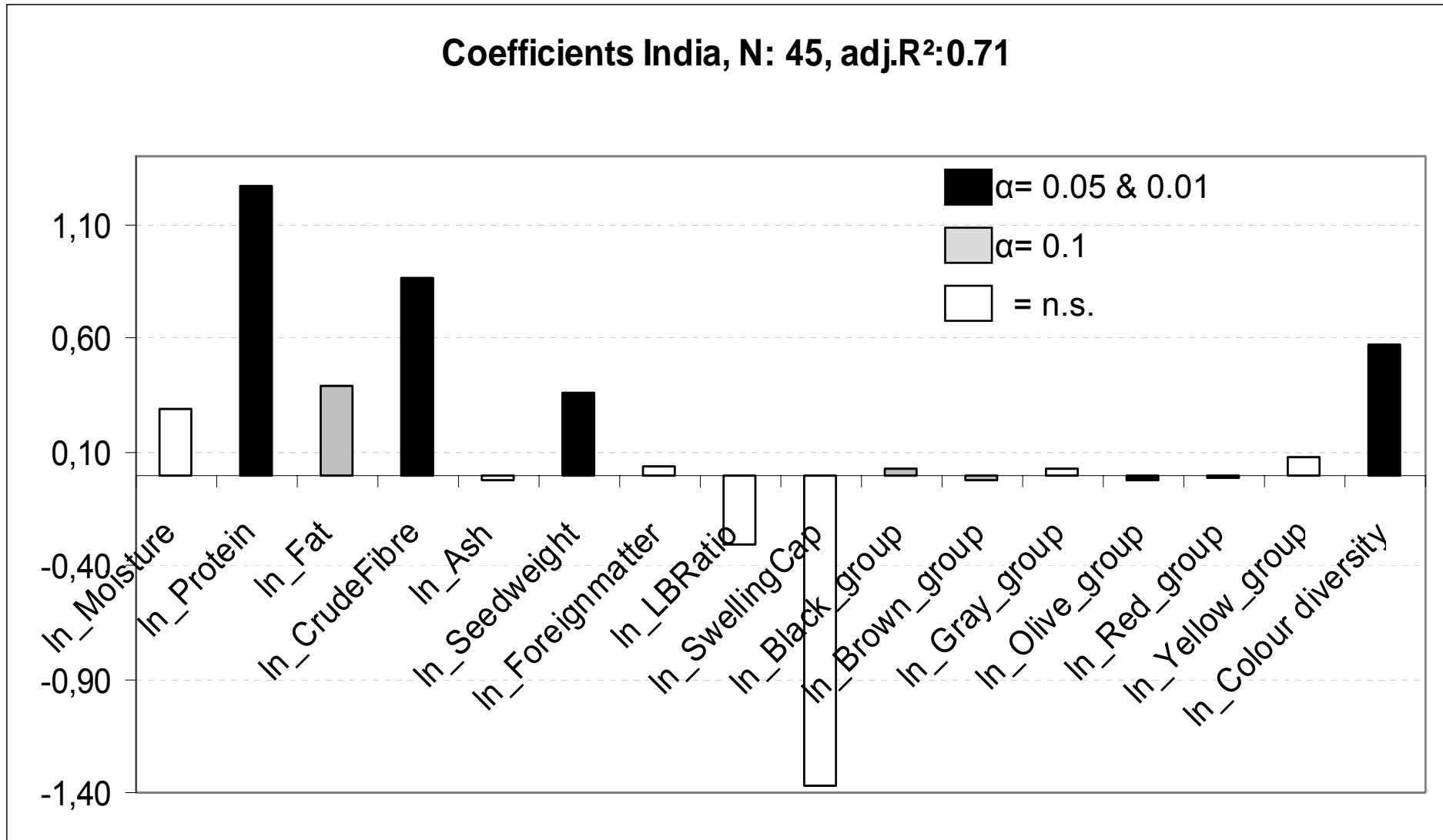
Results Nepal

Coefficients Nepal, N: 108, adj.R²:0.78



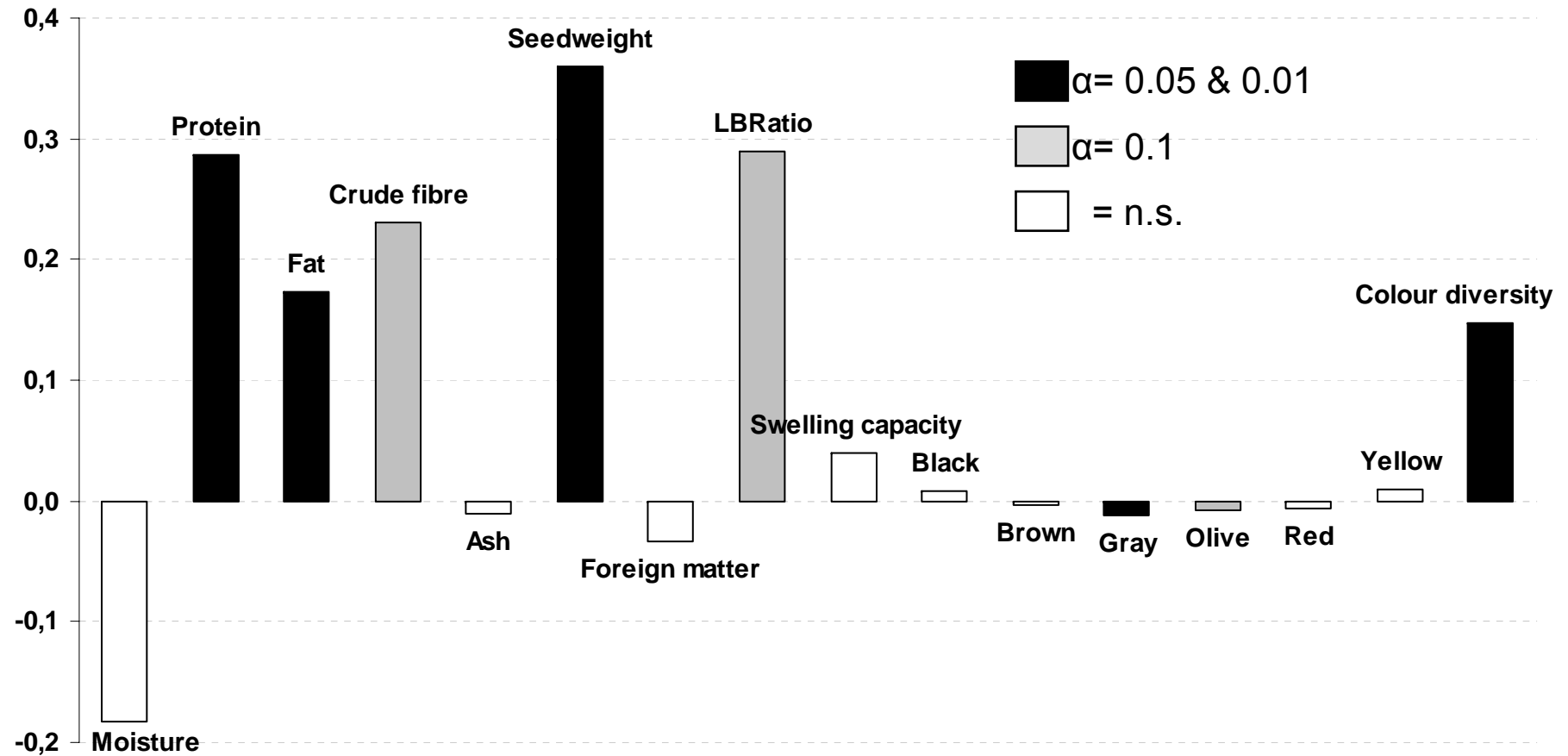
Results India

Coefficients India, N: 45, adj.R²:0.71



Results Nepal & India

India & Nepal, N:153, adj.R²: 0.70



Assess promising varieties

Assam samples

Coefficients			
	0,36	0,29	
Name	100 seed wt (g)	Protein %	Evaluation
RBC-2	4,49	20	7,35
JCR-08-49	12,31	18,5	9,74
RBD-1	5,85	17,5	7,12
JCR-08-50	11,75	18,3	9,48
JCR-07-16	26,05	19,4	14,95
JCR-08-12	8,81	16,9	8,02
PRR-2	6,73	15,3	6,81
JCR-08-30	6,64	19,4	7,95
LBL-40-1	6,72	18,8	7,81
Lrb-33	7,43	15,6	7,15
Mean	9,678	17,97	8,64

Palampur samples

Name	100 seed wt (g)	Protein %	Evaluation
BRS-1	6,80	22,16	8,80
BRS-2	7,20	21,09	8,64
Nainy	6,40	21,80	8,55
Mean	6,80	21,68	8,66

Conclusion

- ❖ Important characteristics for India & Nepal
 - Seed weight +
 - Protein +
 - Fat +
 - Colour diversity +
- ❖ These characteristics determine consumer preferences (i.e. price)
- ❖ Consideration of yield and consumer preferences will increase farmer's acceptance
- ❖ Evaluation of promising varieties will be done with data from Jwala

Thanks!