AN INNOVATIVE AND COMPREHENSIVE APPROACH FOR IDENTIFICATION OF ADOPTER CATEGORIES

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Introduction

Rogers theory (2003) was widely used as the theoretical framework in technology diffusion and adoption (Dooley 1999; Stuart 2000).

Farmers pass through Innovation Decision process and time taken to pass through stages varies from farmer to farmer depending upon the social system and attributes of an innovation.

However, many studies reported that the theory is based on one innovation and only on time factor. Hence, do not reflect the field reality

Limitations of Rogers theory:

- The adopter categories have been made considering one innovation, but one farmer who is laggard for one innovation might be early adopter or late majority for another innovation. If we consider number of practices adopted for one crop, than categorization based on Rogers model is not possible.
- Many studies also revealed that farmers designated as laggard not because he is traditional or lack knowledge of it, but he did not adopt for want of finance/ resources or favorable conditions (Chamala *et. al.* 1980).
- In changed situation where technological development is faster, farmers decision is based on number of criteria or some time he is forced by input seller or private extension personnel to make use of new input without providing complete information or chance to evaluate the innovations.

Review on adopters categories

(Rogers 1983) classified based on mean and standard deviation of the time of adoption- as innovators (<mean-2sd), early adopters (mean-1sd to mean-2sd), early majority (mean to mean-1sd), late majority (mean to mean+1sd), and laggards (>mean+1sd)

Paul *et. al.*(2003) suggested two-level classification- first level, farmers were categorised either as front-runner or laggard. At the second level, front runners were further categorised into innovators and early adopters and the laggards were categorized into late adopters and non-adopters.

Review on adopters categories (Contd….)

Zollo(2004) adopted teen/type categories as - the Edge, Influencers, Conformers and Passive Teen. The final four categories in order of their place in the diffusion chain were innovators, influencers, majority and laggards

Nityashree and Siddaramaiah (2003) categorized adopters in to four categories namely Pioneers, Rationalist, Imitators and Murmurs -PRIM (E)

Mahajan *et. al.* (1990) followed the Bass diffusion model and suggested five categories like that of Rogers. The time interval and the size of adopter's category depend on two parameters of Bass model the coefficient of external influence (p) and coefficient of internal influence (q)

Methodology

Study location: Karnataka and Gujarat states of India

Crops : paddy, cotton, groundnut, maize and potato.

Practices studied : variety/ Hybrid, micro nutrients, plant protection, irrigation and market

Period of the study: Cropping seasons of 2014 and 2015

Data collection tools: Schedule, Checklist

Data collection method: Personal interview/quasi participant observation

New approach adopted for categorization of farmers

Step 1: For each innovation adopted in the village, farmers were listed and sorted chronologically based on the time (year and month) of adoption of the innovation for the first time.

Step2: Relative earliness (R_{XI1}) of farmer 'X' for innovation 'I_1' in each village indicates the number of months farmer X is earlier than the last adopter for the same innovation in the village. It was worked out by using the formula:

$$R_{XI} = T_{LI1} - T_{AI1}$$

where T_{LI1} is the time (year & month) of adoption of 'I_1' innovation by the last adopter in the village and T_{AI1} is the time of adoption (year & month) of farmer 'X'.

Step 3: Relative earliness of 'X' farmer was converted into unit scores (Z_{XI1} = Unit scores of earliness of X farmer for 'I_1' innovation) by using the following formula:

$$Z_{XI1} = R_{xI1} \div R_{EI1} - R_{LI1}$$

Where R_{EI1} is the relative earliness of first adopter(s) of 'I_1' innovation and R_{LI1} is the relative earliness of the last adopter of 'I_1' innovation in the village. The unit scores range from 0 (last adopter) to 1 (first adopter) for each innovation in a village.

New approach (contd..)

Step 4: This process is repeated for the ‘n’ innovations adopted for each crop by the farmers in five functional areas of the study. Sum of relative earliness unit scores of a farmer divided by the number of innovations adopted gives the average relative earliness unit scores for each farmer.

Step 5: Average earliness index of a farmer ‘X’ (AE_X) for ‘n’ number of innovations was obtained by using the formula:

$AE_X = (\sum Z_{XI1..} Z_{XIn})*100 \div$No. of innovations adopted by the farmer ‘X’.

Using the mean and standard deviation of Average Earliness Index for all the adopters and for all the innovations adopted, all farmers were categorized into innovators (>mean+SD), early adopters (mean-SD to mean+SD), and late adopters (< mean-SD). Accordingly 35.9% of the farmers were found in Innovators category and 27% in Late Adopters category.

Further classification was made based on the knowledge of innovation by farmers

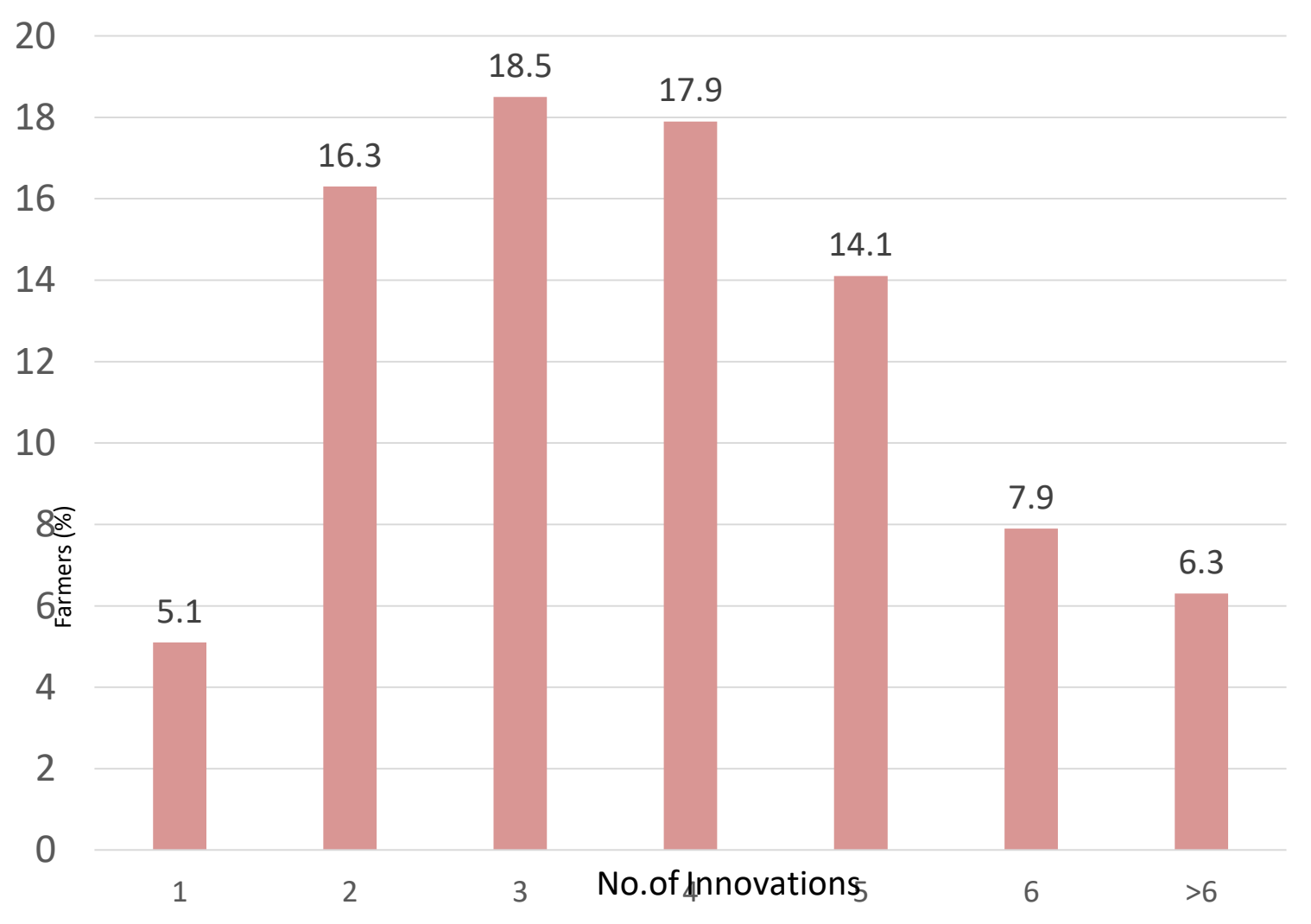
Adopters knowledge of innovations at the time of adoption was measured on a three-point continuum as

“didn’t know”,	score	0
“partially knew”	score	1
and “completely knew”	score	2

Innovations adopted by farmers

No. of innovations	Cotton		Groundnut		Maize		Paddy		Potato	
	Karnataka	Gujarat	Karnataka	Gujarat	Karnataka	Gujarat	Karnataka	Gujarat	Karnataka	Gujarat
Zero			9.9		6.9	97.4		30.0		
One			8.8		8.3	2.6		17.1	6.7	
Two	9.5		49.5		66.7		1.4	21.4	9.0	
Three	27.0	23.5	23.1	4.8	16.7		12.3	28.6	5.6	46.3
Four	27.0	22.4	7.7	33.9	1.4		35.6	2.9	12.4	43.3
Five	21.6	17.6	1.1	33.9			35.6		24.7	9.0
Six	9.5	15.3		24.2			15.1		14.6	1.5
> Six	5.4	21.2		3.2					27.0	

Innovations adopted by farmers



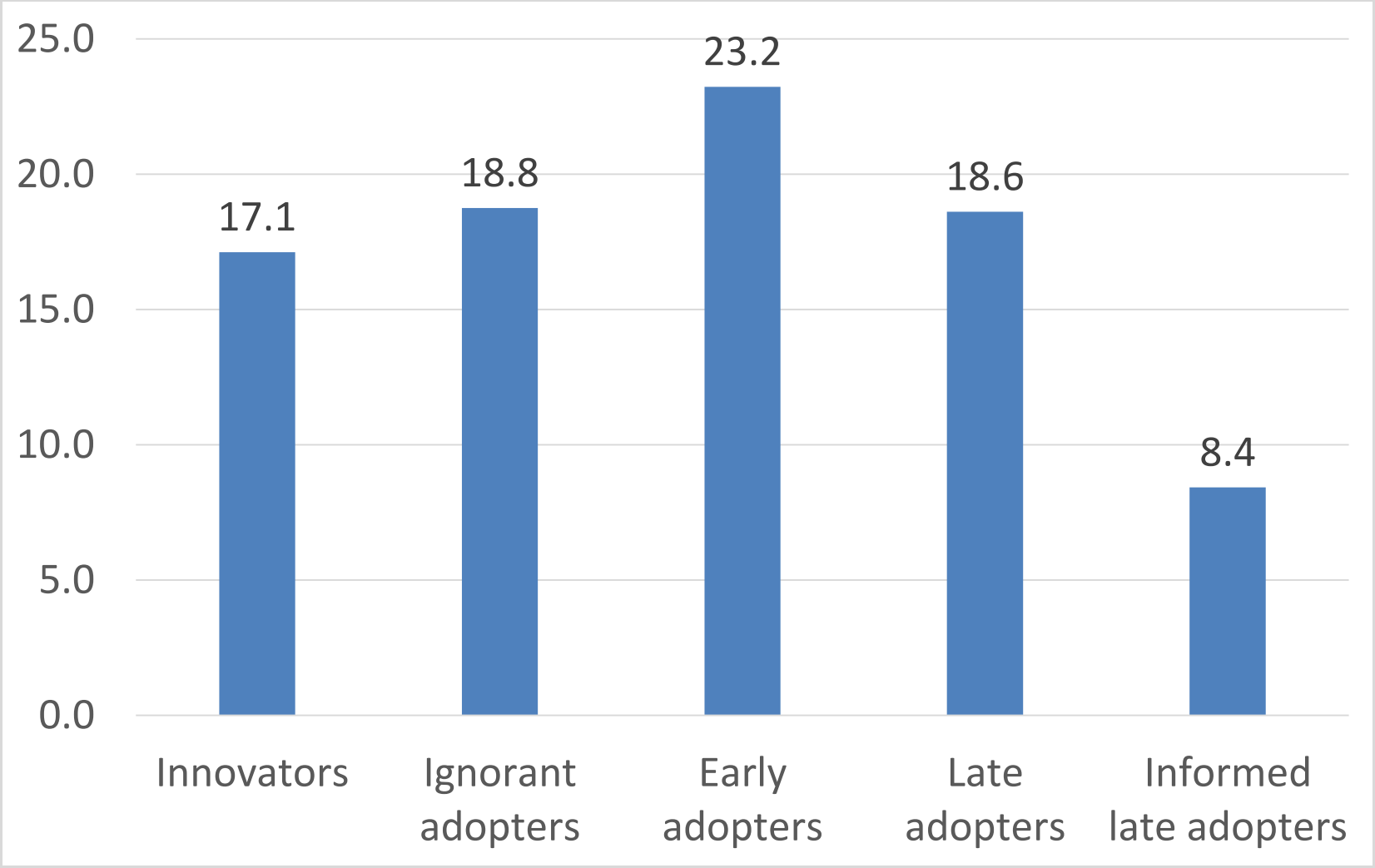
New farmers categories

Based on mean and standard deviation of average knowledge index value,

Innovators were further categorized as “Innovators” and “Ignorant Adopters” (early to adopt, but without knowledge of innovation).

Late adopters were sub-divided into “Late Adopters” and “Informed Late" Adopters ((late, but knowledgeable, deliberate late adoption

Distribution of Adopters (%) into five adopter categories



Conclusion:

- Adopter categorization is mostly innovation-specific although adopters rarely adopt a single innovation in managing their business or profession.
- Previous studies had not considered Knowledge as basis of adopter categorization. But the fact is farmers come across multiple innovations and knowledge of these innovations as the basis, an innovative method of adopter categorization is essential
- The suggested methodology is a guide to categorize farmers and helps in designing appropriate extension strategies to faster dissemination process.
- Methodology is applicable across disciplines and is easy to adopt. New adopter categories have relevance for targeting extension delivery, both to improve effectiveness and to do so with efficiency.